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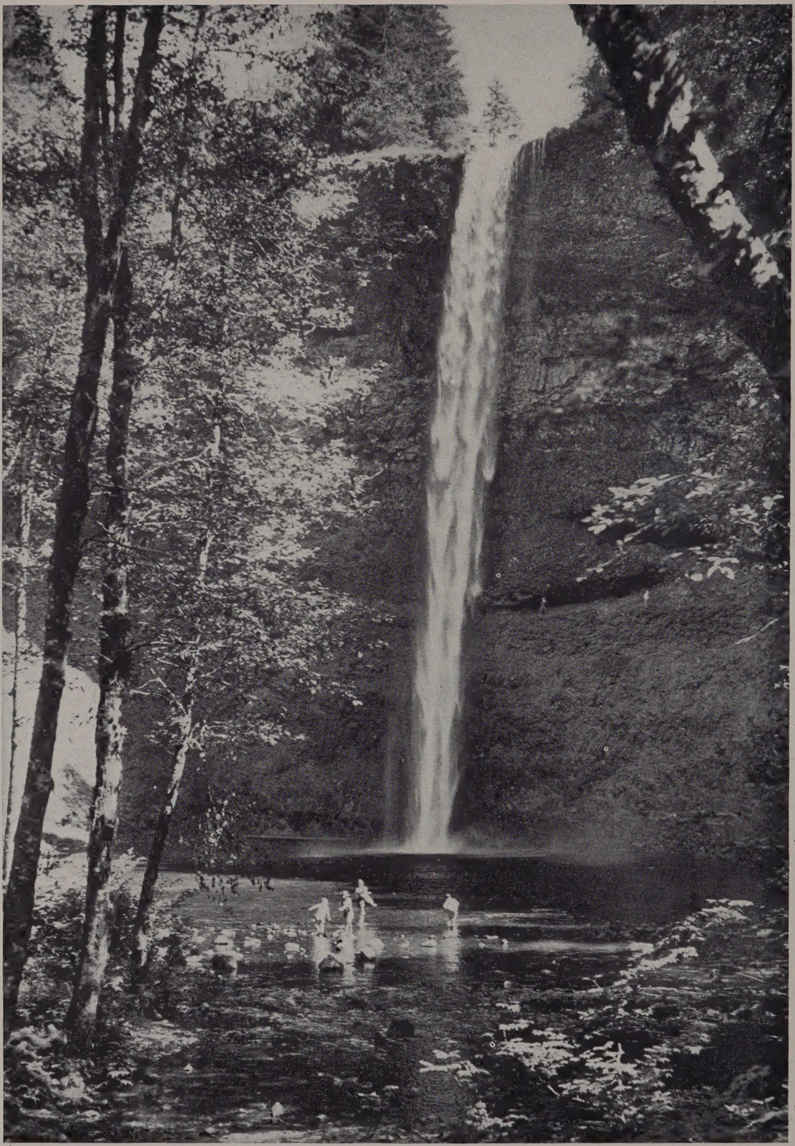
FOURTEENTH BIENNIAL REPORT

Oregon State Highway Commission

1939-1940



UPPER SOUTH FALLS IN SILVER CREEK FALLS STATE PARK,
MARION COUNTY

FOURTEENTH BIENNIAL REPORT

OF THE

Oregon State Highway Commission

For the Period July 1, 1938, to June 30, 1940

OREGON STATE HIGHWAY COMMISSION

HENRY F. CABELL, Chairman
HURON W. CLOUGH, Commissioner
HERMAN OLIVER, Commissioner

R. H. BALDOCK, State Highway Engineer
C. B. McCULLOUGH, Asst. State Highway Engineer
H. B. GLAISYER, Secretary

STATE PRINTING DEPT.

OREGON STATE HIGHWAY COMMISSION

Former Members and Terms

E. J. Adams, Eugene, February 28, 1917, to March 31, 1918.

W. L. Thompson, Pendleton, February 28, 1917, to October 15, 1919.

S. Benson, Portland, February 28, 1917, to November 15, 1920.

R. A. Booth, Eugene, April 1, 1918, to May 28, 1923.

J. N. Burgess, Pendleton, October 16, 1919, to November 21, 1919.

E. E. Kiddle, Island City, November 26, 1919, to December 28, 1920.

J. B. Yeon, Portland, November 22, 1920, to March 31, 1923.

W. B. Barratt, Heppner, January 8, 1921, to March 27, 1923.

Wm. Duby, Baker, March 27, 1923, to July 31, 1927.

H. B. Van Duzer, Portland, April 1, 1923, to October 7, 1931.

W. H. Malone, Corvallis, May 28, 1923, to March 31, 1927.

C. E. Gates, Medford, April 1, 1927, to March 11, 1931.

Robert W. Sawyer, Bend, August 1, 1927, to May 28, 1930.

M. A. Lynch, Redmond, May 29, 1930, to August 1, 1931.

Chas. K. Spaulding, Salem, March 11, 1931, to February 16, 1932.

Wm. Hanley, Burns, August 1, 1931, to February 16, 1932.

J. C. Ainsworth, Portland, October 8, 1931, to February 16, 1932.

Leslie M. Scott, Portland, February 17, 1932, to March 31, 1935.

Carl G. Washburne, Eugene, February 17, 1932, to October 9, 1935.

E. B. Aldrich, Pendleton, February 17, 1932, to March 31, 1940.

F. L. Tou Velle, Jacksonville, October 9, 1935, to March 31, 1939.

Present Members

Henry F. Cabell, Portland, appointed April 1, 1935.

Huron W. Clough, Canyonville, appointed April 1, 1939.

Herman Oliver, John Day, appointed April 1, 1940.

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LETTER OF TRANSMITTAL

Salem, Oregon,
January 1, 1941.

HONORABLE CHARLES A. SPRAGUE,
Governor of the State of Oregon.

Dear Sir:

In compliance with the provisions of section 44-111, Oregon Code 1930, we have the honor of presenting to you the report of the Oregon State Highway Commission for the period from July 1, 1938, to June 30, 1940.

Respectfully yours,

OREGON STATE HIGHWAY
COMMISSION

HENRY F. CABELL, Chairman
HURON W. CLOUGH, Commissioner
HERMAN OLIVER, Commissioner

BIENNIAL REPORT

OF THE

Oregon State Highway Commission

Fiscal Years 1939 and 1940

INTRODUCTION

This report has for its purpose the presentation of such financial, statistical, and other data as are needed for an intelligent understanding of Oregon's highway problems. The period covered extends from July 1, 1938, to June 30, 1940, the fiscal biennium which has elapsed since the submission of the last previous report. In addition to the statistical data covering this particular biennium, there are included certain factual data dating back to 1917, which year witnessed the inauguration of Oregon's roadbuilding program. Forecasts of probable revenues and requirements for the next biennial period and a discussion of certain basic financial problems are also included. In certain cases the statistical tables have been reduced to a calendar-year basis in the interest of clarity.

The first section of this report contains the Commission's discussion of budgetary and other financial matters and its recommendations to the State Legislature. The second section contains the report of the State Highway Engineer to the State Highway Commission.

Section three contains statistical compilations.

SECTION ONE

Budgetary and Financial Matters

Source of Funds for State Highway Improvement

The funds disbursed by the State Highway Commission for the construction, maintenance and operation of highways are derived from two general sources: (1) state funds, which consist principally of motor vehicle imposts; and (2) federal aid of various types and classes. In addition to the above, certain minor contributions in the form of county moneys and other miscellaneous cooperative funds are available for expenditure for highway purposes.

The state motor vehicle imposts consist of:

1. Motor vehicle license fees, which include both registration fees and drivers' license fees.
2. Motor fuel taxes.
3. Motor transportation fees.
4. Fines for traffic law violations.

In addition to the above, certain minor increments accrue to the state highway fund by virtue of cash discounts and cooperative payments from counties, railroads and others.

State incomes for highway purposes reached a maximum in the calendar year 1930, with a total of $12,279,444. Owing to unfavorable economic conditions, and to the further fact that the legislature in that year reduced motor vehicle registration fees, this income dropped to $9,859,702 in 1931, to $8,918,993 in 1932, and to $6,337,057 in 1933. This latter sum was approximately $1,000,000 below the minimum fixed requirements at that time for highway bond debt service, maintenance, administration, and emergency or unavoidable reconstruction. A portion of the necessary reconstruction fund was provided in that year by the federal government. The remainder of the deficit, however, had to be funded through a sale of five-year bonds in the amount of $1,500,000.

Since 1933, the state highway income has increased more or less steadily, reaching totals of $10,668,916 in 1938, and $11,771,365 in 1939. Exact figures for the calendar year 1940 are not yet available, but it is estimated that the net income from road-user imposts for that year will amount to $12,757,000. The detailed figures for the calendar years 1939 and 1940 are given in accompanying Tables I and II.

TABLE I

State Road-user Income for Calendar Year 1939

	Gross Amount Paid by Motor Vehicle Owners	*Collection Expense*	*Net Amount for State Highways, State Police and Counties*
Motor vehicle license fees and drivers' license fees	$ 3,430,240	$ 470,572	$ 2,959,668
Gasoline tax ($11,742,313 less $1,428,065 refunds)	10,314,248	43,080	10,271,168
Motor transportation fees	* 1,144,098	222,625	921,473
Fines	23,658		23,658
Totals	$14,912,244	$ 736,277	$14,175,967
Less $2,064,468 contributions to counties and $340,134 to state police department			2,404,602
Net revenue for state highway purposes			$11,771,365

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* Includes the transfer of $226,523 for the fourth quarter of 1938, but does not include the transfer of $284,167 for the fourth quarter of 1939.

TABLE II

Estimated State Road-user Income for Calendar Year 1940

	Gross Amount Paid by Motor Vehicle Owners	*Collection Expense*	*Net Amount for State Highways, State Police and Counties*
Motor vehicle license fees and drivers' license fees	$ 3,300,000	$ 400,000	$ 2,900,000
Gasoline tax ($12,900,000 less $1,555,000 refunds)	11,345,000	45,000	11,300,000
Motor transportation fees	1,334,000	230,000	1,104,000
Fines and cash discounts	40,000		40,000
Totals	$16,019,000	$ 675,000	$15,344,000
Less $2,235,000 contributions to counties, and $352,000 to state police department			2,587,000
Estimated net revenue for state highway purposes			$12,757,000

During the depression years of 1932, 1933, and 1934, the State Highway Department was able to function normally only by reason of the receipt of certain extraordinary governmental aid in the form of various work relief appropriations, and by reason of the further fact that certain federal moneys were for the first time made available without the necessity for financial cooperation or matching hitherto required on the part of the State. During 1936 the federal government resumed, in part, the policy of requiring match moneys from the State, and during the current biennial period (1939-1940) the greater portion of federal funds for highway construction was required to be matched with state moneys.

In addition to state moneys expendable for highway purposes, as described hereinabove, highway revenues during the current biennial period have been augmented to a considerable extent through the receipt of federal aid. Funds received from this source fall into two general classifications: (1) periodic federal aid for highways, which consists of funds definitely appropriated for this purpose by Congress; and (2) extraordinary federal appropriations whose purpose is principally emergency unemployment relief. Falling in the first category are the regular federal aid funds, federal aid for secondary highways, federal funds for grade crossing elimination work, and federal lands highway funds. These funds are expended pursuant to fixed appropriations, and the amount which the State of Oregon will receive in each fiscal period is definitely determinate, contingent only upon the ability of the State to match the funds where matching is required. Falling in the second category are cooperative funds such as Public Works Administration funds and Work Progress Administration funds. Funds of this class may or may not be available at any given time, as their availability is not on any established continuing basis. Usually, these funds are not available to the States in any definite amounts. The extent to which the State may avail itself of them (when they are available) is limited by the State's ability to submit acceptable projects and to contribute its share from State funds.

Federal funds collected by the State Highway Commission during the calendar years 1939, and estimates of the amounts expected to be collected during the calendar years 1940, 1941 and 1942, are as follows:

1939	$2,652,475
1940 (approximate)	2,874,000
1941 (estimated)	3,867,000
1942 (estimated)	2,750,000

Attention is called to the fact that the amounts above stated are the amounts of federal funds collected during the respective calendar years to reimburse the State for expenditures made on cooperative projects, including expenditures made during the previous year as well as expenditures made during the current year. The amounts should not be confused with the amounts of federal aid expended during those years or with the amounts of federal aid funds apportioned to the State for those years, which amounts may differ very greatly from the amounts collected. For instance, while the amount of federal aid expected to be collected in 1941 is $3,867,000, the amount of federal aid funds apportioned to the State for the fiscal year 1940 is $2,595,219, and the amount of federal aid funds to be utilized in work performed during 1941 is approximately $3,700,000. These variations are occasioned by the fact that the performance of work and the collection of reimbursement for the apportionment of any year necessarily extend over a period two or more years in length.

Federal funds received by the State Highway Commission which fall in the first category above described can be used only for improvements of a permanent nature, and usually they can be used only on highways included in the federal aid highway system of the State. They are not available to meet maintenance expense, operating costs, interest or principal on bond indebtedness, the expense of making surveys, or securing rights of way. With certain exceptions, they are not available for work on county roads or secondary highways. Federal aid is also contingent upon certain cooperative expenditures by the

State in a considerable amount. The percentages of cooperation (State funds) required for the various types of regular governmental aid are as follows:

	Stipulated Minimum	Actual Average
Regular federal aid	39 per cent	43 per cent
Federal aid for secondary highways	39 per cent	43 per cent
Federal aid for grade separation projects	0 per cent	14 per cent
Federal aid for federal lands highway projects	0 per cent	30 per cent

In addition to providing cooperative funds in the percentages here indicated, the State is required to provide all rights of way and to bear all preliminary engineering expense.

Amounts Received and Disbursed, 1939-1940

The amounts received into the State Highway Fund from all sources and the amounts disbursed therefrom during the calendar years 1939 and 1940 are as shown in accompanying Table III.

TABLE III

Receipts and Disbursements, 1939 and 1940

	1939 (Actual)	1940 (Estimated)
Receipts:		
Road-user income	$14,175,967	$15,344,000
Federal funds collected	2,652,476	2,874,000
County cooperation	9,480	4,000
Miscellaneous	12,202	31,000
Gross receipts	$16,850,125	$18,253,000
Deduct for contributions to counties and to state police department	2,404,602	2,587,000
Net income for state highway purposes	$14,445,523	$15,666,000
Balance on hand at beginning of year	457,965	1,074,836
Total amount available for disbursement	$14,903,488	$16,740,836
Disbursements:		
Capital outlays	$ 6,940,784	$ 8,016,000
Maintenance	3,338,255	3,585,000
Miscellaneous operations	773,219	708,000
Bond interest and principal	2,776,394	2,759,000
Total amount disbursed	$13,828,652	$15,068,000
Balance on hand, end of year	$ 1,074,836	$ 1,672,836

THIRD STREET GRADE SEPARATION IN BEND, U. S. 97 AND OREGON TRUNK RAILWAY

The indicated increase of approximately $1,220,000 in the net income for 1940, as compared with the net income for 1939, consisted principally of an increase of $986,000 in state fund income and an increase of $222,000 in the amount of federal aid funds collected. The increase in state funds was unusually large and was due, presumably, to the rapid improvement in business conditions which occurred during the same period.

The increase in expenditure during 1940 over the expenditure during 1939 was approximately $1,240,000. Of that increase, $1,076,000 was in capital outlay or construction expenditure item.

State Debt Structure for Highways

At the close of the biennial period ending June 30, 1940, the state highway bond debt amounted to $15,841,750, there having been a reduction of $4,000,000 in the amount of the bond debt during the biennium. The principal payments on outstanding highway bonds will remain fairly uniform at approximately $2,000,000 annually for each of the four years from 1941 to 1944, inclusive. No appreciable relief from this major

TABLE IV

State Highway Bonded Indebtedness Account

Calendar Year	Annual Principal	Annual Interest	Annual Total	Bonds Outstanding At End of Year
1917	$	$ 5,000.00	$ 5,000.00	$ 1,400,000.00
1918		72,900.00	72,900.00	2,840,000.00
1919		141,099.99	141,099.99	10,140,000.00
1920		503,725.00	503,725.00	19,140,000.00
1921		974,870.83	974,870.83	30,700,000.00
1922	125,000.00	1,521,266.67	1,646,266.67	36,075,000.00
1923	179,750.00	1,742,150.00	1,921,900.00	38,395,250.00
1924	334,500.00	1,824,240.00	2,158,740.00	38,060,750.00
1925	3,797,000.00	1,799,267.05	5,596,267.05	37,263,750.00
1926	1,197,000.00	1,722,761.65	2,919,761.65	36,066,750.00
1927	1,600,000.00	1,663,215.87	3,263,215.87	34,466,750.00
1928	1,750,000.00	1,586,060.99	3,336,060.99	32,716,750.00
1929	1,825,000.00	1,503,578.47	3,328,578.47	30,891,750.00
1930	1,925,000.00	1,418,314.70	3,343,314.70	30,466,750.00
1931	1,975,000.00	1,386,522.18	3,361,522.18	29,491,750.00
1932	2,975,000.00	1,369,435.06	4,344,435.06	27,516,750.00
1933	1,975,000.00	1,290,992.54	3,265,992.54	27,041,750.00
1934①	2,175,000.00	1,250,010.02	3,425,010.02	25,866,750.00
1935①	5,675,000.00	1,225,541.73②	6,900,541.73	25,691,750.00
1936①	2,950,000.00	1,089,213.37	4,039,213.37	23,441,750.00
1937③	2,800,000.00	984,228.06	3,784,228.06	21,641,750.00
1938③	3,550,000.00	877,764.27	4,427,764.27	18,841,750.00
1939	2,000,000.00	776,394.23	2,776,394.23	16,841,750.00
1940	2,075,000.00	683,724.19	2,758,724.19	14,766,750.00
1941	2,150,000.00	589,085.40	2,739,085.40	12,616,750.00
1942	2,125,000.00	493,790.36	2,618,790.36	10,491,750.00
1943	2,070,250.00	399,995.32	2,470,245.32	8,421,500.00
1944	1,915,500.00	308,610.28	2,224,110.28	6,506,000.00
1945	1,453,000.00	227,913.99	1,680,913.99	5,053,000.00
1946	1,053,000.00	166,998.95	1,219,998.95	4,000,000.00
1947	650,000.00	126,765.80	776,765.80	3,350,000.00
1948	500,000.00	104,109.53	604,109.53	2,850,000.00
1949	425,000.00	86,797.01	511,797.01	2,425,000.00
1950	325,000.00	72,171.99	397,171.99	2,100,000.00
1951	275,000.00	62,046.97	337,046.97	1,825,000.00
1952	275,000.00	52,984.45	327,984.45	1,550,000.00
1953	275,000.00	43,921.93	318,921.93	1,275,000.00
1954	275,000.00	34,859.41	309,859.41	1,000,000.00
1955	275,000.00	25,796.89	300,796.89	725,000.00
1956	200,000.00	17,531.25	217,531.25	525,000.00
1957	150,000.00	12,187.50	162,187.50	375,000.00
1958	150,000.00	8,437.50	158,437.50	225,000.00
1959	150,000.00	4,687.50	154,687.50	75,000.00
1960	75,000.00	937.50	75,937.50	
	$55,650,000.00	$30,251,906.40	$85,901,906.40	
Less refunding and temporary financing bonds	11,450,000.00		11,450,000.00	
Totals①	$44,200,000.00	$30,251,906.40	$74,451,906.40	

① Includes Coast Bridge short-term bonds.

② Includes $4,866.50 refund to cover accrued interest paid in by Ladd & Bush, Bankers on Coast Bridge bonds.

③ Includes retirement of 1937 and 1938 short-term bonds.

TABLE V

State Highway Bonds Issued, 1917 to 1938

Year	Par Value of Bonds Sold		Time for Retirement	Bonds Retired Same Year
	Long-term Construction Bonds	Short-term Bonds for Temporary Financing		
1917	$ 400,000.00	$	8 years	$
	1,000,000.00		25 years	
1918	1,440,000.00		25 years	
1919	800,000.00		14 years	
	6,500,000.00		25 years	
1920	9,000,000.00		25 years	
1921		3,000,000.00①	4 years	
	8,560,000.00		25 years	
1922	5,500,000.00		25 years	125,000.00
1923	2,500,000.00		25 years	179,750.00
1924				334,500.00
1925	3,000,000.00		25 years	3,797,000.00
1926				1,197,000.00
1927				1,600,000.00
1928				1,750,000.00
1929				1,825,000.00
1930	1,500,000.00②		25 years	1,925,000.00
1931	1,000,000.00③		25 years	1,975,000.00
1932		1,000,000.00④	6 months	2,975,000.00
1933		1,500,000.00⑤	5 years	1,975,000.00
1934		1,000,000.00⑥	1 year	2,175,000.00
1935	3,000,000.00⑦		25 years	3,175,000.00
		1,000,000.00⑥	6 months	1,000,000.00
		1,500,000.00⑥	10 days	1,500,000.00
1936		700,000.00⑥	10 days	2,950,000.00
1937		1,000,000.00⑧	6 months	2,800,000.00⑨
1938		750,000.00⑧	8 months	3,550,000.00⑩
1939				2,000,000.00
1940				2,075,000.00
Totals	$44,200,000.00	$11,450,000.00		$40,883,250.00
	29,433,250.00	11,450,000.00		
Bonds outstanding end of 1940	$14,766,750.00	$		$

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① Account of unfavorable bond market, $3,000,000 of 4-year bonds were sold with intention to refund in 1925 with long-term bonds at lower interest rate.

② This bond sale made to enable state to match available federal aid.

③ This bond sale made to finance state relief labor program.

④ This sale of 6-months bonds was made to overcome deficit caused by change in date of licensing cars from January 1st to July 1st.

⑤ This sale of 5-year bonds was made to finance state relief program.

⑥ These sales of short-term bonds made to finance the construction of the five Oregon Coast bridges.

⑦ This sale was made to refund a like amount of Oregon Coast Bridge bonds, resulting in a saving of interest.

⑧ These sales of short-term bonds were made to enable the state to utilize its winter income in carrying on its federal aid program during the preceding summer construction season.

⑨ Includes $500,000 of 1937 short-term bonds retired December 31, 1937.

⑩ Includes $500,000 of 1937 short-term bonds retired January 31, 1938, and $750,000 of 1938 short-term bonds retired December 31, 1938.

obligation can be realized until after the year 1944, but, during the three years from 1945 to 1947 the amounts required for bond retirement will drop off at the rate of about $400,000 per year. At the end of 1947, the outstanding indebtedness will have been reduced to $3,350,000, and the annual bond expense will have been reduced to $600,000.

Short-term bonds in the amount of $750,000 were issued July 1, 1938, to enable the State to use a part of its forthcoming winter income in the carrying on of its federal aid program during the 1938 construction season. The entire amount of this issue was retired on December 31, 1938.

Analysis of Financial Needs

The foregoing statements of incomes and disbursements indicate that very considerable amounts of money are being made available for, and are being expended in the maintenance, operation, renewal and expansion of the State's highway system. They do not, however, indicate whether those amounts are, or are not, adequate for the purpose which they are intended to serve. They do not within themselves indicate whether the amounts being provided for and expended on state highways are greater or less than economically sound policy dictates.

Depreciable properties, such as highways, must not only be maintained, but must be renewed at intervals to protect the original investment. They must also be improved and extended as the needs of increasing traffic require. Without adequate renewal, improvement and extension, the highway system must gradually deteriorate until it no longer can render satisfactorily the service expected of it. As funds for these purposes must come from state highway income, it seems advisable to at this time make a comparison of the highway income with the needs of the highway system to ascertain the sufficiency of the income. Such a comparison is made in the paragraphs which follow.

In order that the results of the comparisons may be representative for a period of some length, all comparisons of incomes with requirements or needs will be on the basis of annual averages for the 12-year period from 1941 to 1952, inclusive. Consideration will be given first to the matter of probable income.

In the accompanying Table VI, there is given an estimate of the funds expected to become available for use on state highways, the amounts in columns 2 and 3 being estimates for the years 1941 and 1952, respectively, and the amounts in column 4 being an estimate of the annual averages for the 12-year period hereinbefore mentioned. These estimates contemplate that the present legislation which governs the rates of motor vehicle taxes and fees, and the manner of distributing the revenues from those taxes and fees between the State Highway Commission and the counties and others, are to continue in effect without change during the whole of the 12-year period. They contemplate, also, that federal aid and federal forest highway funds will continue to be made available to the State in the same amounts annually as at present. An allowance of three (3) per cent per year is made in the estimates of State revenues for increases which may occur from year to year as a result of increases in population, increases in

MILLS BRIDGE OVER WILSON RIVER. NOTE STEEL HANDRAIL PROVIDING MINIMUM VIEW OBSTRUCTION numbers of motor vehicles, and increases in motor traffic and motor transportation.

TABLE VI

Estimate of Funds To Be Available for State Highways

	Calendar Year 1941	Calendar Year 1952	Annual Average 12-Year Period
1. *Gross Collections (State Funds):*			
Motor vehicle and drivers' license fees	$ 3,455,000	$ 4,430,000	$ 3,942,000
Gasoline tax (less refunds)	11,620,000	15,470,000	13,545,000
Motor transportation fees	1,383,000	1,825,000	1,605,000
Fines	30,000	40,000	35,000
Cash discounts	10,000	13,000	11,000
Total gross collections	$16,498,000	$21,778,000	$19,138,000
2. *Deductions and Transfers:*			
Administration expense, motor vehicle fees	$ 475,000	$ 575,000	$ 525,000
Administration expense, gasoline tax	50,000	67,000	58,000
Administration expense, motor transport fees	230,000	307,000	269,000
Contributions to state police	354,000	465,000	410,000
Contributions to counties	2,393,000	3,212,000	2,796,000
Total deductions and transfers	$ 3,502,000	$ 4,626,000	$ 4,058,000
Net state funds for state highways	$12,996,000	$17,152,000	$15,080,000
3. Federal aid funds	2,595,000	2,250,000	2,280,000
4. Federal forest highway funds	1,000,000	1,000,000	1,000,000
Total amount available for state highways	$16,591,000	$20,402,000	$18,360,000

From Table VI, it will be seen that the annual average of the amounts estimated to be available for state highway purposes during the 12-year period, is $18,360,000.

Proceeding now to consideration of the needs of the state highways, reference is made to accompanying Table VII. In this table are shown estimates of the amounts needed to meet bond obligations and to maintain, operate, construct and reconstruct the state highways. Columns 2 and 3 show the estimated amounts for the years 1941 and 1952, respectively. Column 4 shows the estimated annual averages for the 12-year period from 1941 to 1952, inclusive. In the paragraphs which follow, explanation is given of the manner in which each of the annual average amounts is arrived at.

TABLE VII

Estimate of Financial Needs of State Highways

Items	*Calendar Year 1941*	*Calendar Year 1952*	*Annual Average 12-Year Period*
1. Debt service	$ 2,740,000	$ 330,000	$ 1,330,000
2. Maintenance	4,370,000	5,160,000	4,740,000
3. Operation	*890,000	860,000	830,000
4. Construction and reconstruction:			
a. Construction required to complete first construction of present system	8,931,000	14,392,000	3,500,000
b. Reconstruction required by depreciation and obsolescence:			
1. Replacement in kind			4,600,000
2. Betterment to accompany replacement in kind			2,700,000
c. New construction for extension of system			1,000,000
Total required to meet minimum needs	$16,931,000	$20,742,000	$18,700,000

Administrative expense is included in above listed items as follows: 20 per cent in maintenance, 10 per cent in operation, and 70 per cent in construction.

Right of way and quarry costs are included as follows: 10 per cent in maintenance and 90 per cent in construction.

Survey cost is included as follows: 5 per cent in maintenance and 95 per cent in operation.

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* This amount includes one nonrecurring item of $100,000, which item is to cover a recommended increase in the Highway Department revolving fund.

The amount required for debt service (item 1) is a definitely known amount, as the amounts of principal and interest falling due during the next 12 years are a matter of record.

The amounts required for maintenance and operation (items 2 and 3) are established with a high degree of accuracy by the experience of past years.

In arriving at the amount assigned to item 4a, new construction to complete the present highway system, it has been assumed that those of the primary and secondary state highways which either have not been constructed at all or which, although including some sections built by counties years ago to modest engineering standards, are largely in primitive condition, should be constructed to good standards within the next 12 years, as most of such highways have already been on the system, awaiting construction, for 10 years or more. This construction will cost $42,190,000 ($17,770,000 for primary highways and $24,420,000 for secondary highways), or $3,500,000 per year for the 12 years.

The $7,300,000 set up for item 4b, reconstruction required by depreciation and obsolescence, is made up of the following items:

1. Reconstruction to replace original construction in kind	$4,600,000
2. Betterments and improvements necessarily made along with replacement in kind to provide for changed conditions and increased traffic	2,700,000
	$7,300,000

Depreciation is a determinable item and, for Oregon's system of highways, has been found to amount to approximately $4,600,000 annually. This is a depreciation of only 2.0 per cent per year on the average depreciated capital investment of $230,000,000 which the state highway system will represent during the 12-year period. By any one versed in economics, this will be acknowledged a very reasonable rate of depreciation. That reconstruction work of a renewal nature must be provided for in an annual amount at least equal to the amount of the depreciation is an accepted principal and needs no defense. No one is satisfied with a mere renewal in kind. Both the principals of economics and the public demand require the modernization of the system to higher standards to meet the growth and development of motor transport. The amount to be provided for the betterments and improvements which must go along with the "renewal in kind" work is not so definitely determinable as is the amount required for renewal in kind, but during the past eight years the cost of such work has averaged approximately sixty (60) per cent of the cost of the "renewal in kind" work. The same percentage should apply to the work of the next 12 years, as there will be little change in the nature of the reconstruction work to be performed. It is on this basis that the $2,700,000, included in the above total of $7,300,000, is arrived at.

With a growing population and an increasing traffic, it will not suffice to provide only for such construction and reconstruction as is necessary to retain and improve the present mileage of state highways. There must be an expansion or extension of the highway system sufficient to keep pace with the growing needs, in order that the system may serve the increased traffic in a manner as satisfactory, at least, as it now serves the present traffic.

The population increase in Oregon has averaged 1¼ per cent per year during the 10-year period from 1930 to 1940. Traffic counts and gasoline consumption indicate a present average increase in the volume of traffic carried by the highways of approximately 4 per cent per year. In view of this experience, it seems reasonable to expect that during the 12-year period which we are considering, the increase in population will be approximately 1 per cent per year, and that the increase in traffic will be approximately 3 per cent per year. With these increases in prospect, it is evident that a considerable amount of extension work, with resultant increase in the capital investment, must be provided for.

It would not be difficult to sustain an argument that $1,500,000 or $2,000,000 should be provided annually, for extending the highway system beyond its present limits, but as there is little prospect that such amounts will be available, the conservative amount of $1,000,000 has been set up for that item (item 4c) in Table VII. This contemplates the accounting for the several items in Table VII and establishes the total shown in that table ($18,700,000) as the annual average of the amounts that should be provided for state highway purposes during the 12-year period, 1941-1952.

The conclusion to be drawn from the foregoing analysis may be stated briefly as follows:

Average annual need of State Highways, as shown by Table VII	$18,700,000
Average annual income for State Highways, as shown by Table VI	18,360,000
Amount by which annual income fails to meet minimum annual needs of the State Highway System	340,000

CENTRAL OREGON HIGHWAY EAST OF BROTHERS IN DESCHUTES COUNTY

RECONSTRUCTED OCHOCO HIGHWAY (U. S. 28) NEAR OCHOCO DAM

At this point, attention is called to the fact that the analysis above given is based on an assumption that the state highways, as they now exist, are adequate and sufficient for the transportation requirements of the present time, or in other words, on the assumption that the depreciation and obsolescence which has taken place in the system in years past has been completely met by the replacement work performed. This is, of course, a matter on which there may be a difference of opinion, but apparently the feeling of the majority of the people of this State, as sensed by the Highway Commission, is that the present system is not adequate and that many sections of the highway system, such, for instance, as the section of the Pacific Highway between Roseburg and Grants Pass, the section of the Columbia River Highway between Troutdale and The Dalles, and the section of the Oregon Coast Highway between Marshfield and the California line, are outmoded to the extent that they should have been reconstructed some years ago. This feeling is concurred in by the Highway Commission.

Examination of the state highway financial situation from a different line of approach discloses the fact that the completion and modernization of the present highway system will cost an estimated $146,000,000. Of that amount, as previously stated, $42,000,000 is required for the completion of the present system, leaving $104,000,000 as the amount required for the modernization of those portions of the system which are now suffering from structural deterioration and functional obsolescence.

Impatient people are demanding that the particular roads in which they are interested be reconstructed now and without further delay. Such reconstruction could be accomplished in four years, possibly, but it would require an annual expenditure of $26,000,000, which amount is so greatly in excess of possible income as to place such an accomplishment beyond all hope. To accomplish the reconstruction of the highway system in a period so long, even, as 12 years will require an expenditure of $8,700,000 per year. On that basis, the total financial need of the highway system for the next 12 years would be as set forth in accompanying Table VIII.

When the requirements of the system as shown by Table VIII are compared with the expected income as shown by Table VI, the conclusion to be drawn is as follows:

Average annual need of State Highways during next 12-year period, as shown by Table VIII	$20,100,000
Average annual income for State Highways during next 12-year period, as shown by Table VI	18,360,000
Amount by which annual income falls short of annual requirements of the State Highway System during next 12-year period	1,740,000

Table VII indicated the shortage in annual income to be $340,000 per year. Table VIII indicates the shortage to be $1,740,000. The difference of $1,400,000 apparently indicates that the modernization of the system is behind by an amount equal to 12 times $1,400,000, or approximately $17,000,000. This would seem to be a conservative estimate of this lag, when we consider that the cost to complete the modernization of the Pacific Highway between Roseburg and Grants Pass and the Columbia River Highway between Troutdale and The Dalles is estimated at $18,000,000.

The studies of income and needs as briefly discussed herein bring out the fact that the highway income is sufficient to maintain and operate the system, to complete the highways which comprise the present system, to renew and reconstruct the existing state highways as renewal and reconstruction is made necessary by structural depreciation and obsolescence, and to make a limited amount of extensions to the system. They indicate that the shortage in income is primarily in the amounts with which to overcome depreciation and with which to extend the present system as will be desired and as should be done to provide satisfactorily for the increasing transportation needs of a growing state. They show that it will be necessary to weigh and to compare the relative advantages and benefits of extending the present system and of carrying on the modernization of the older sections of the system, and to properly balance the two, before proceeding far with either.

TABLE VIII

Estimate of Financial Needs of State Highways

Based on the completion and modernization of the state highway system during the next 12-year period.

Items	*Calendar Year 1941*	*Calendar Year 1952*	*Annual Average 12-Year Period*
1. Debt service	$ 2,740,000	$ 330,000	$ 1,330,000
2. Maintenance	4,370,000	5,160,000	4,740,000
3. Operation	*890,000	860,000	830,000
4. Construction and reconstruction:			
a. Construction required to complete first construction of present system	10,331,000	15,792,000	3,500,000
b. Reconstruction required to modernize system			8,700,000
c. New construction for extension of system			1,000,000
Total required to meet minimum needs	$18,331,000	$22,142,000	$20,100,000

Administrative expense is included in above listed items as follows: 20% in maintenance, 10% in operation, and 70% in construction.

Right of way and quarry costs are included as follows: 10% in maintenance and 90% in construction.

Survey cost is included as follows: 5% in maintenance and 95% in operation.

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* This amount includes one nonrecurring item of $100,000, which item is to cover a recommended increase in the Highway Department revolving fund.

The Highway Commission is in hopes that the situation may be helped some by steps which are being taken, and will continue to be taken, to bring about, through improved design and construction methods, a reduction in the rates of the functional obsolescence and structural deterioration to which the highways, like all other structures, are subject. If the people of the state will be patient, and, if no more of the state highway revenue is diverted or allotted from the state highways, the Highway Commission believes that an increase in motor vehicle taxes may be avoided, and that the shortage of income may be weathered without its becoming serious to the point where the investment in state highways is endangered or service to traffic seriously impaired.

The Commission has approached this problem from a long-range view in order that it be better understood. As far as the next two years are concerned, there is another factor in addition to those given that may make all the more necessary the availability of a maximum amount of state highway funds; namely, the question of the relationship of highways to the federal defense program. The necessity for improved highways for modernized armies is self-evident. This is particularly true of the coast states subject to invasion from the sea.

It is possible that the Federal Government may make available sums for modernizing strategic highways in the national defense system. Present indications are that the states will be required to match part of this money and provide the necessary rights of way; to make the surveys and supervise the construction. It is apparent that there is need for the immediate removal of certain bottlenecks to military transportation such as narrow and weak bridges, narrow, crooked highways through the mountains and congested routes through cities.

The problem of national defense is one that vitally concerns all citizens of this country and no step should be taken which would in any way handicap the State in meeting this emergency.

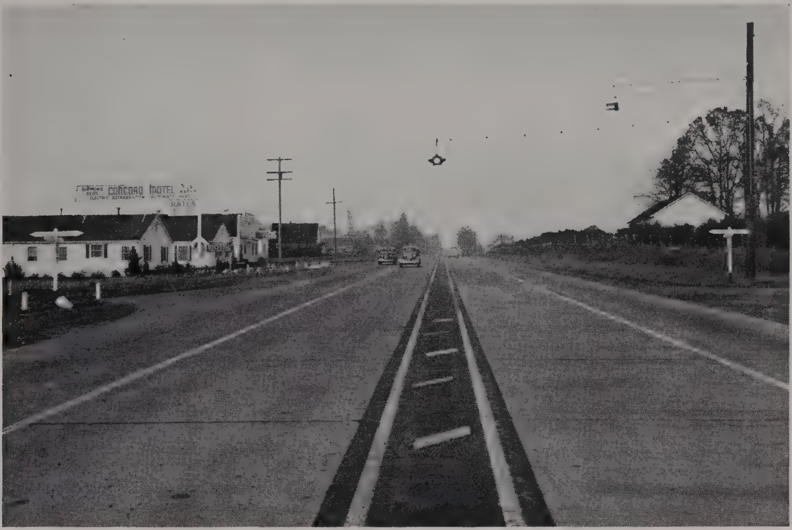
Legislative Recommendations

Distribution of Road-user Revenues

In view of the present great need of funds with which to carry on the work of reconstructing obsolete and inadequate sections of state highways and of improving the many miles of secondary state highways which are still in a primitive state of improvement, the Highway Commission recommends to the State Legislature that no legislation be passed which will operate to reduce road-user revenues below the amounts which would be yielded under the road-user revenue acts that have been in effect during the past biennium; also, that no legislation be passed which will reduce the proportion of the road-user revenue which is allotted to state highway purposes.

The financial needs of the state highway system are discussed in some detail in a preceding article, and in that article a comparison is made of the expected highway income of the next 12 years, with the needs of the highway system during the same 12-year period. Some further comments concerning the highway financial situation are made in the paragraphs which follow.

Maintenance requirements increase steadily as the volume of traffic grows and as new mileages of highway are added to the highway system. Expenditures for operation features such as signs and signals, traffic line marking, snow removal, sanding of slippery pavements and removing of slides, increase from year to year as the safeguarding of lives and the expediting of traffic demands. Debt service requirements alone, of all items of highway expense, become less from year to year.



RAISED ASPHALTIC BARS IN CENTER NEUTRAL ZONE OF U. S. 99E AT CROSSING OF CONCORD ROAD NORTH OF OREGON CITY. NOTE OVERHEAD FLASHING BEACON AND SODIUM LUMINAIRE

The highway system must be extended and improved in proportion to the growth in population and in traffic. The demand for and the necessity of such extension and improvement are constant.

It is axiomatic that depreciation or obsolescense overtakes any plant investment. Since no sinking fund is provided for the renewals required by the depreciation of state highway facilities, it is necessary to care for depreciation renewals through current revenues. There is need for large expenditures of funds in many parts of the state to modernize highways. State highway construction has not kept pace with the innovations, changes and rapid advance of the motor transport industry. In consequence, old and obsolete sections of highway are taking a heavy toll of the commerce of the state—much heavier than most people realize.

Due to the shortage of funds which obtained during the period of depression, the State Highway Commission was for a time unable to care for the obsolescence of highways built years ago and is at the present time behind in needed reconstruction. There is, therefore, a very pressing demand for the reconstruction of old and obsolete sections of highways carrying major traffic.

US 99 and US 30, the Pacific Highway and the Columbia River and Old Oregon Trail Highway, respectively, are the income earners of the state highway system. Twelve of the 15 towns of the state having populations greater than 5,000 are situated on these two great arterials. A very large percentage of the traffic on the state highway system is carried by them. Their reconstruction is long overdue and their reconstruction would be of very great benefit to their many users and to the industries and businesses which they serve. There is also pressing demand for the reconstruction of several sections of the Oregon Coast Highway and of The Dalles-California Highway. Sections of the John Day Highway through the Blue Mountains of Eastern Oregon and of the Ochoco Highway through the Ochoco Mountains constitute bottlenecks which seriously retard trade and commerce into the important John Day Valley. Their reconstruction is long overdue, the same as is the reconstruction of the other roads mentioned.

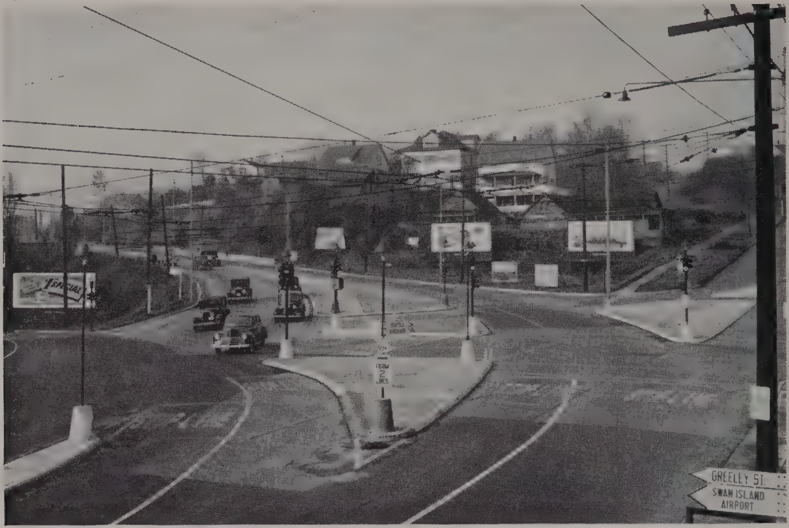
Wealth is primarily created by the exchange of goods. Goods cannot be exchanged economically except by means of adequate transportation facilities. A number of the communities of Oregon are not served in any way by rail and these communities are dependent entirely upon the highways for their transportation service. The maintenance, growth and development of Oregon's economic system is inexorably tied to the Oregon highway system.

There has been some contention to the effect that the basis of distribution of highway taxes in Oregon is inequitable. In this connection, the attention of the Legislature is again directed to the State Highway Department's Technical Bulletin No. 10, entitled "An Analysis of the Highway Tax Structure of Oregon."

As an evidence of the good faith of the Highway Commission with respect to the obligation imposed upon it by the Legislature for the building and maintaining of the arterial routes through the various cities, the record shows that during the past two years the Highway Commission has expended, in building and maintaining the arterial routes of the state highways through the cities of Oregon, the sum of $2,975,000. The proportion of road-user revenues that should have been expended upon the arterial streets along these routes during this same period of time, based on the theory of benefits, amounts to the sum of $2,700,000. In other words, there has been expended during the past two years on main city streets by the State Highway Commission approximately one quarter million dollars more than is indicated by the corresponding equitable obligation. It is apparent, therefore, that while the cities have not received any road-user moneys for their secondary and tertiary systems, they have been relieved of the more pressing obligations on the arterial highways.

The State Highway Commission has in mind further and extensive improvement of the arterial highways into and through cities. Such improvement is in accord with the established policy of the Public Roads Administration and apparently is considered by military authorities to be one of the pressing needs of the hour for the reason that bottlenecks in cities seriously impede the movement of troops in times of emergency. Under present federal statutes, the Highway Commission is the only local agency empowered to utilize Federal Aid highway funds in the making of such improvements.

In conclusion, the Highway Commission respectfully suggests to the Legislature that the present fees and taxes, which in the main are believed to be equitably adjusted, remain as at present. The Commission also most earnestly recommends



CHANNELIZATION AT INTERSECTION OF INTERSTATE AVENUE (US 99W) AND GREELEY AVENUE, PORTLAND. NOTE CURB REFLECTORS

that no funds be diverted from the state highway fund for other than road purposes and that there be no further allocation of such funds to any other purpose whatsoever. This recommendation is made after due and careful consideration of the financial condition of the state highway fund, the obligations imposed upon the fund and the national emergency which now confronts us. It is hoped that the next Congress will make available to the states, on some matching basis, additional funds to carry on the construction of the strategic military system of highways, to widen and strengthen weak bridges, to improve crooked bottleneck sections in the mountains, to provide wider shoulders and to eliminate bottlenecks in the cities and towns on the present system. The State of Oregon should be in position to do its share toward the commendable objective of providing for the nation's defense. Even though the federal funds may be made available on a basis which requires little or no matching with state funds, the State must meet the cost of the rights of way and other non-participating items which in the aggregate may amount to a very considerable sum.

Limited Access for Arterial Highways

The need for more positive legislation to provide means for limiting access from adjacent property to new arterial highways, particularly through suburban areas near towns and cities, is becoming increasingly evident. The ribbon commercial development along such highways is gradually restricting the uses of the highways and thus decreasing the benefits to motor transport. Wayside stands of every description cause parking congestion, while vehicles dart out at unexpected angles into the moving traffic streams. Moreover, the natural beauty of the roadside is destroyed and replaced by disorder and ugliness. Such conditions are the direct cause of a major number of the traffic accidents and traffic fatalities which occur on such sections of highway. By reducing the capacities of the highways and by otherwise interfering with highway use, this ribbon development depreciates the service value of the capital investment in highways. Finally, the congestion forces the building of new facilities, a wasteful practice which this or any other state can ill afford.

After all, the state highways are built and maintained by road-user funds and there appears to be no sound reason why the adjacent property owners should convert, say, farming land into profitable commercial property and thus destroy the facility which created the wayside commercial values.

The limited access proposed will, in general, serve to permit land use without impairing present land values, and at the same time will minimize the future impairment of the road as a traffic artery. The State should, of course, pay for such damage as limited access may bring to present land use and should fully compensate owners for the depreciated value, if any, of the adjacent property to which direct access is denied.

Weight and Dimension Limits for Trucks

Weights and dimensions of motor trucks operating over state highways have been a controversial question for years. The Oregon State Highway Department made a study of the dimensions of motor vehicles with relation to the geometric design of highways and a study of axle spacings and loadings with respect to stresses in pavements and bridge structures. Largely as a result of these studies and investigations, a conference of the Western Association of State Highway Officials at Reno, Nevada, in 1938 passed a resolution advocating uniform weights and dimensions for motor vehicles in the several western states with the view of creating the maximum of benefits afforded by the design of the road and with the view of eliminating state barriers which were restricting the free movement of interstate commerce.

The exhaustive investigation made by the State Highway Department of Oregon, which formed the basis of this resolution, was published in Department Bulletin No. 7. This investigation disclosed that when the alignment of the road is sufficiently straight and the pavement sufficiently wide, vehicles up to 60 feet in length and 8 feet in width can move over the highways without encroaching on the left hand lane of the traveled way. This increased length of vehicle or load permits the use of more axles, the reduction of the axle loading, and a substantial increase in the total gross load. By the use of more axles, the total gross load can be increased from the present state limit of 54,000 pounds to 68,000 pounds without harming the highway facilities. The computations disclose that this increase in weight actually causes less stress in bridges and pavements than may result under the present limits of the Oregon statute because of additional restrictions on axle loadings and axle spacings.

It is the considered opinion of the State Highway Commission, that the determination of maximum weights and dimensions of motor vehicles operating over state highways is largely a function of the engineering design of the highway facilities over which such vehicles operate. The Highway Commission believes that the Legislature wishes the advice and counsel of the Commission and of the engineering staff of the Highway Department. The Commission and the Department are concerned solely in the public interest and believe that the maximum benefits that can be afforded by the highway facilities should be made available to commercial transport.

After all, under the inflexible laws of competition, these benefits are in a short time passed on to the general public in the form of reduced cost of the transportation of goods and services. This applies not only to interstate commerce but also to intrastate commerce. The Commission, believes, however, that in view of the fact that certain portions of Oregon's highways are narrow and crooked, full benefits cannot be realized until such sections have been widened and straightened.

Vehicles 60 feet in length cannot be maneuvered safely on narrow, twisty highways, and the Highway Commission recommends that no vehicle more than 50 feet in length be permitted to operate over Oregon's highways save and except by a special continuous permit issued by the Highway Commission for operation on sections of highway which, in the judgment of the Commission, are so designed as to permit the operation of longer equipment with reasonable safety to the traveling public.

Vehicle loads would be limited by formulas which take into consideration the length of vehicle and the spacing of axles. No gross weight over 68,000 pounds would be permitted; likewise, no length of vehicle more than 60 feet. This plan would encourage the addition of more axles which would reduce axle loadings. Reduction in axle loading will proportionately reduce load stress and reduce highway maintenance costs. The increase in number of axles will permit a material increase in the total weight of the vehicle and load.

Since one of the major industries of the state is that of lumbering, the Highway Commission further recommends that it be empowered to grant permits for continuous movements of overlength vehicles transporting logs and piling when, in the opinion of the Commission, the conditions are such that this form of transport can be carried on with reasonable safety to the traveling public.

The Commission will offer bills to the highway committees of the Legislature relating to the legislative recommendations above discussed.

EAGLE CREEK BRIDGE ON COLUMBIA RIVER HIGHWAY
EAST OF BONNEVILLE

Section Two

REPORT

OF THE

State Highway Engineer

TO THE

State Highway Commission

OF THE

STATE OF OREGON

1939-1940

R. H. BALDOCK, State Highway Engineer

LETTER OF TRANSMITTAL

Salem, Oregon.
January 1, 1941.

To the Honorable State Highway Commission:

Henry F. Cabell, Chairman
Huron W. Clough, Commissioner
Herman Oliver, Commissioner

Gentlemen:

I have the honor to submit to you herewith the report of the State Highway Engineer for the period July 1, 1938, to June 30, 1940.

Respectfully yours,

R. H. BALDOCK
State Highway Engineer

Section Two

REPORT OF THE
STATE HIGHWAY ENGINEER
TO THE
STATE HIGHWAY COMMISSION
1939-1940

INTRODUCTION

This portion of the biennial report has for its purpose the presentation of a brief outline of the various findings and activities of the Highway Department during the current biennium, together with such statistical information as is necessary for a proper understanding of the problems and activities of the Department. The section which immediately follows comprehends a presentation of the organization of the Highway Department, and a brief description of the duties of the various administrative and executive heads. Following this is a report on the progress made during the biennium in the improvement of state highways, which portion, in turn, is followed by reports of the various subdivisions of the highway department organization, as follows:

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Financial Report by the Office Engineering Department	71
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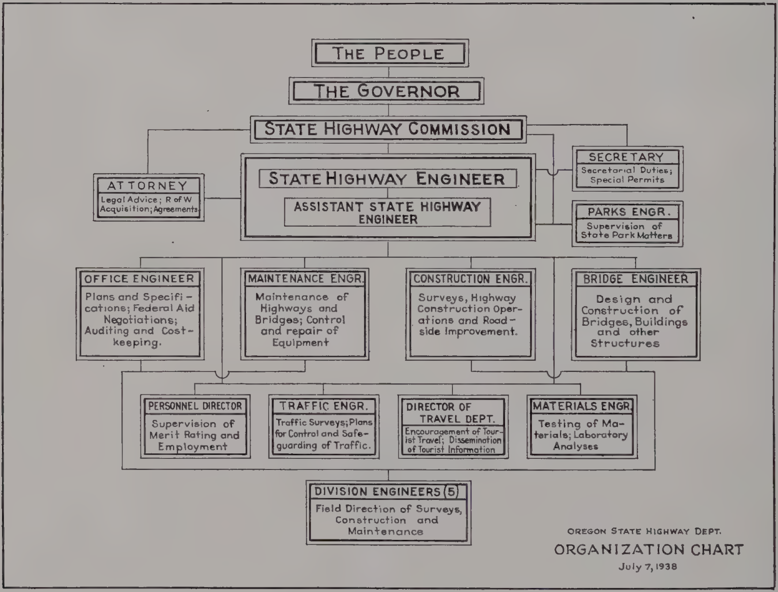
HIGHWAY DEPARTMENT ORGANIZATION

Administrative and Supervisory Organization

The administrative organization of the Highway Department consists of the State Highway Engineer, the Assistant State Highway Engineer, the Attorney, and the Secretary. The executive staff consists of the Office Engineer, the Maintenance Engineer, the Construction Engineer, the Bridge Engineer, the Parks Engineer, the Traffic Engineer, the Materials Engineer and the Travel and Information Department. The line or field organization consists of five Division Engineers with headquarters at Portland, Salem, Roseburg, Bend and La Grande.

The integration of the organization is indicated by the chart given hereinbelow, and the paragraphs descriptive of the departments of the various administrative and executive officers which follow:


THE PEOPLE
THE GOVERNOR
STATE HIGHWAY COMMISSION
ATTORNEY
Legal Advice; R of W Acquisition; Agreements
STATE HIGHWAY ENGINEER
ASSISTANT STATE HIGHWAY ENGINEER
SECRETARY
Secretarial Duties; Special Permits
PARKS ENGR.
Supervision of State Park Matters
OFFICE ENGINEER
Plans and Specifications; Federal Aid Negotiations; Auditing and Cost-keeping.
MAINTENANCE ENGR.
Maintenance of Highways and Bridges; Control and repair of Equipment
CONSTRUCTION ENGR.
Surveys, Highway Construction Operations and Roadside Improvement.
BRIDGE ENGINEER
Design and Construction of Bridges, Buildings and other Structures
PERSONNEL DIRECTOR
Supervision of Merit Rating and Employment
TRAFFIC ENGR.
Traffic Surveys; Plans for Control and Safeguarding of Traffic.
DIRECTOR OF TRAVEL DEPT.
Encouragement of Tourist Travel; Dissemination of Tourist Information
MATERIALS ENGR.
Testing of Materials; Laboratory Analyses
DIVISION ENGINEERS (5)
Field Direction of Surveys, Construction and Maintenance
OREGON STATE HIGHWAY DEPT.
ORGANIZATION CHART
July 7, 1938

Assistant State Highway Engineer: The Assistant State Highway Engineer is the acting head of the Department in the absence of the State Highway Engineer, and, in addition, carries at all times a certain delegated portion of the administrative load. The four Staff Officers report to the Assistant State Highway Engineer in connection with certain definite activities. In general, these comprehend those functions of the Office Engineer involving matters of highway accounting; those functions of the Maintenance Engineer involving the annual budgets for bridges and buildings; those functions of the Construction Engineer involving economics, project analyses and landscaping; and those functions of the Bridge Engineer involving design and technical detail. The Assistant State Highway Engineer handles all Testing Laboratory, Travel Department and all Personnel matters. C. B. McCullough is the Assistant State Highway Engineer.

Attorney: The Attorney acts as general counsel for the Highway Commission, has charge of all matters of a legal nature, and superintends the acquisition of all property for rights of way, quarries, and other purposes. J. M. Devers is Attorney, and J. W. DeSouza is Assistant Attorney for the Commission.

Secretary: The Secretary has charge of all details of a secretarial nature, including the preparation and compilation of the minutes of all Commission meetings, the issuance of highway use permits, and Commission correspondence. H. B. Glaisyer is Secretary for the Highway Commission.

Office Engineer: The Office Engineer has charge of the preparation of highway plans and specifications, and of all auditing, cost keeping and federal aid negotiations. S. H. Probert is Office Engineer.

Construction Engineer: The Construction Engineer supervises all field engineering work involved in the locating, planning and constructing of highways, including economic surveys, project analyses and roadside beautification. All contract work other than bridge and building work is under his direction. H. G. Smith is Construction Engineer.

Maintenance Engineer: The Maintenance Engineer superintends the work of maintaining all highways and bridges, and supervises the upkeep and operation of all equipment owned by the Department. J. N. Bishop is Maintenance Engineer.

Bridge Engineer: The Bridge Engineer supervises the design and construction of all bridges, grade separations, buildings, and other major structures. G. S. Paxson is Bridge Engineer.

Parks Engineer: The State Parks Engineer superintends the operation, maintenance and improvement of all state parks. S. H. Boardman is the State Parks Engineer.

Traffic Engineer: The Traffic Engineer has charge of the problems involved in the direction and control of highway traffic. John Beakey is Traffic Engineer.

Materials Engineer: The Materials Engineer has charge of the departmental testing laboratories and of the inspection of all materials in the field. N. M. Finkbiner is Materials Engineer.

Director of Travel and Information: The Director of the Travel and Information Division has charge of the Department's travel promotion campaign and the Division of Tourist Travel Information. H. B. Say is Director of this department.

Field Engineering Organization

In the performance of the field duties incidental to the supervision and direction of the construction, maintenance and operation of state highways, there are five Division Engineers reporting to the four executive Staff Officers above named (Office Engineer, Maintenance Engineer, Construction Engineer, and Bridge Engineer).

Each division engineer supervises and directs all surveys, construction work and maintenance work on the state highways within his division. He acts as the local representative of the State Highway Department in dealing with county officers, contractors, and the public in general. In other words, the division engineers are line officers having direct charge of the work, and the work is coordinated so as to bring about a uniformity in surveys, construction and maintenance by the four staff officers, each of whom acts as the personal representative of the state highway engineer in his negotiations with the division engineers.

The maintenance is directed locally by 15 resident maintenance engineers, acting as maintenance superintendents, located within the five divisions, who have direct supervision of 126 section crews, each working under the direction of a section foreman. The maintenance superintendents also supervise the work of the extra gang crews in removing snow, removing slides, re-oiling surfacings, patching pavements, repairing bridges, etc., which work is generally seasonal in character. Their duties are, in general, to see that the proper materials and equipment are supplied, to supervise the work of the section crews and extra gangs, to keep an accurate account of the expense incurred, and in all respects to look after the upkeep of the highways within their respective territories.

When highway location surveys are to be made in a division, a locating engineer is assigned by the construction engineer to perform the work under the supervision of the division engineer. The construction projects are handled by resident construction engineers who are moved from one division to another as the distribution of the work may require. Each resident construction engineer is in charge of one or more contract jobs and his duties are to measure the quantities of work for which the contractor is entitled to payment, to inspect the workmanship and materials, and to insure compliance with the specifications, and to otherwise look after the interests of the State in connection with all matters concerned.

Division No. 1 is in charge of E. A. Collier, with headquarters in Portland. It comprises the counties of Multnomah, Clackamas and Washington, and parts of Yamhill, Columbia and Hood River.

Division No. 2 is in charge of F. D. Eason, with headquarters in Salem. It comprises the counties of Marion, Linn, Benton, Polk, Lincoln, Tillamook and Clatsop, and parts of Columbia and Yamhill.

Division No. 3 is in charge of K. D. Lytle, with headquarters in Roseburg. It comprises the counties of Lane, Douglas, Coos, Curry, Josephine and Jackson.

Division No. 4 is in charge of W. E. Chandler, with headquarters in Bend. It comprises the counties of Wasco, Sherman, Jefferson, Crook, Deschutes, Klamath and Lake, and parts of Hood River, Gilliam, Wheeler and Harney.

Division No. 5 is in charge of W. C. Williams, with headquarters in La Grande. It comprises the counties of Morrow, Umatilla, Union, Wallowa, Baker, Malheur and Grant, and parts of Gilliam, Wheeler and Harney.

Equipment Department

The Equipment Department is directly under the supervision of the Maintenance Engineer. In view of the fact that practically all of the equipment is used in maintenance operations, the central control of both features, which was placed in effect in 1932, has proven very satisfactory. The Equipment Department repairs and maintains the equipment for which a rental charge is made which includes a depreciation charge which is decreased each year of the life of the equipment until the first cost is amortized. A perpetual inventory is kept of all state property, and each employe is held responsible for all equipment placed in his charge until relieved of that responsibility by proper authority. Worn out and obsolete equipment and materials, scrap metal, etc., are disposed of by a survey board consisting of one of the State Highway Commissioners, the State Highway Engineer and one of the staff officers who appraise the value and dispose of the material on the basis of competitive bids.

Equipment repair shops are located at Salem, La Grande, Klamath Falls and Coquille.

PROGRESS IN HIGHWAY IMPROVEMENT

General Summary

Expressed in mileages of different classes of work performed, under the supervision of the State Highway Department, the progress made during 1939 and 1940 in the improvement of highways is as follows:

TABLE IX

Classification of Work	*Primary (Miles)*	*Secondary (Miles)*	*County (Miles)*
New Construction Work:			
Concrete paving	20	......	......
Bituminous paving	2	......	......
Bituminous macadam wearing surface	35	5	......
Oil mat wearing surface	352	148	48
Rock and gravel surfacing	168	22	14
Grading	25	55	3
Resurfacing, Widening, Etc.:			
Pavement resurfacing and widening	22	......	7
Oiled surface reconstruction	255	19	3
Rock and gravel resurfacing	225	87	37
Regrading and widening	149	53	40

When the miles of improvement made during the biennium are combined with the mileages improved during earlier years, the mileages of improvement made since the beginning of highway construction in 1913 are found to be as follows:

TABLE X

Kind of Work	*Constructed by Highway Commission (Miles)*	*Constructed by Public Roads Administration (Miles)*	*Total (Miles)*
New Construction Work:			
Paving	855	......	855
Bituminous macadam	977	87	1,064
Oiled surfacing	3,487	170	3,657
Rock and gravel surfacing	3,463	703	4,166
Grading	3,637	686	4,323
Resurfacing, Widening, Etc.:			
Pavement resurfacing and widening	324	......	324
Non-skid treatment	415	......	415
Oiled surface reconstruction	3,139	......	3,139
Rock and gravel resurfacing	1,658	86	1,744
Regrading and widening	1,355	123	1,478

Of the 7,131 miles in the primary and secondary systems of state highways at the close of 1940, 1,035 miles are paved, 1,140 miles are surfaced with bituminous macadam, 2,998 miles are surfaced with oiled macadam, 1,125 miles are surfaced with rock or gravel surfacing, and 414 miles are graded ready for surfacing. Only 419 miles may be classed as unimproved.

NEW WATER STREET ROUTE OF PACIFIC HIGHWAY EAST IN OREGON CITY

PAVEMENT WIDENED TO 46 FEET ON THE PACIFIC HIGHWAY EAST IN SOUTH SALEM

The improvement status of each of the 53 state primary highways and of each of the 109 state secondary highways is shown in the mileage tabulations given in Section Three of this report.

The rate at which improvement work has progressed during the biennium has been somewhat higher than that experienced during the preceding two-year period, improvements having been made on 1,642 miles of primary and secondary highways during 1939 and 1940, as compared to 1,378 miles of improvement on the same classes of highways during 1937 and 1938.

Primary State Highways

The improvement of the primary state highway system has been advanced during the biennium in accordance with a representative and well balanced program. The progress made on each of the primary state highways materially improved during the biennium with a brief description of some of the major projects on each is as hereinafter enumerated.

Pacific Highway, U. S. No. 99, 99E and 99W: Reconstruction work on the Pacific Highway has been performed on approximately 35 miles of the highway and has consisted of widening, relocating and otherwise improving the sections affected to enhance the safety and capacity of the highway for the benefit of the constantly increasing number of highway users. On the Pacific Highway East (99E), a completely new alignment of four-lane pavement, 0.82 mile in length, has been constructed through Oregon City, permitting traffic to avoid the congestion of the business district and eliminating cross street hazards. At the north limits of Salem, 0.11 mile of the highway has been widened to extend a four-lane pavement from the previously completed undercrossing section past a recently developed business section with its increase in parking and local use hazards. Commencing at the south limits of Salem, and extending southerly 1.59 miles to a connection with a previously completed improvement, the highway has been widened, paved and otherwise bettered to furnish adequate provision for suburban district parking and pedestrian problems and to facilitate the free movement of through traffic into the city. A major improvement through Albany, 3.91 miles in length, eliminates the grade crossing of the tracks of two railroad companies, avoids the circuitous routing through the extended business and residence districts of the city and provides a four-lane pavement free from cross traffic. As a result of this improvement, local rural traffic can get to and from the city business center with greater speed and safety, and the former congestion and delay to through traffic is eliminated. On the Pacific Highway West (99W), 1.03 miles of grading and pavement widening was performed between Oregon Slough and Columbia Slough to care for the increased travel on the Denver Avenue approach to the Interstate bridge at Portland. The elimination of a particularly dangerous railroad grade crossing and congested business area at Tigard has been provided by 1.83 miles of four-lane pavement and overcrossing structure constructed on new alignment. 1.94 miles of pavement widening and resurfacing through Dundee and southerly therefrom has facilitated the free movement of traffic over a previously inadequate and poorly aligned section of highway. South of Corvallis, 0.81 mile of 44-foot pavement has been constructed to care for increased traffic demands created by suburban development. On the Pacific Highway (99), the south unit of a completely new route through Cottage Grove has been constructed, the improvement consisting of 0.85 mile of divided four-lane pavement closely paralleling the main line railroad tracks and thus avoiding all conflict with city traffic and many cross street intersections. The grading and paving of the 2.41-mile Roseburg-Shady Point Section has completed the improvement to high standards of a section of highway over five miles in length through Roseburg and on the south approach to the city. Between Grants Pass and Green Creek, 3.54 miles of grading and paving on a new alignment has considerably shortened the travel distance and eliminated many dangerous turns. The grading of 5.60 miles of highway roadbed and the construction of 6.31 miles of bituminous macadam surfacing on the Siskiyou Station-California State Line Section has completed the important and outstanding improvement of the highway from Ashland to the south boundary of the State, and now furnishes a fast and safe route over a once tortuous and hazard-fraught section. During the two-year period covered by this report, contracts involving an expenditure of $2,500,000 have been awarded for construction work on the Pacific Highway.

Columbia River and Old Oregon Trail Highways, U. S. No. 30: The improvement of the Columbia River and Old Oregon Trail Highways during the biennium has involved reconstruction work on approximately 27 miles of the highway route. At Rainier, a section 0.45 mile in length has been widened and paved along the main street, thus facilitating the movement of traffic through the city. The section between St. Helens and Scappoose has been completed to high standards during the biennium by the regrading and paving of a 3.09-mile unit of highway north of Scappoose. The improvement of Sandy Boulevard in Portland has been carried forward by the widening of 1.73 miles thereof to provide a four-lane pavement easterly to 74th Avenue. Between Troutdale and Oneonta, on what is planned as an entirely new route at water grade for the Columbia River Highway, between Troutdale and Bonneville, the work performed during the period covered by this report consists of 8.78 miles of clearing, 0.97 mile of roadbed grading, 5.07 miles of rock-dike construction to protect embankments against erosion by river currents, and the placing of approximately 1,000,000 cubic yards of embankment using materials from river channel dredging operations of the Federal Government. The Public Roads Administration of the Federal Works Agency has constructed 2.03 miles of regrading and paving on improved alignment between Eagle Creek and Cascade Locks, thus completing the highway to high standards from Bonneville to Cascade Locks. At Warren Creek, about 10 miles east of Cascade Locks, a recurring flooding of the highway by spring freshets has been corrected by extensive control work on the creek channel and by the reconstruction of 0.69 mile of highway grading and bituminous macadam surfacing. From Lang Canyon easterly a distance of 5.63 miles to Arlington, the highway has been regraded and surfaced with bituminous macadam. In the vicinity of Haines, 4.46 miles of widening and bituminous macadam surfacing has been constructed on improved grade and alignment and with resulting improvement in the stabilizing of previously unstable roadbed subgrade conditions. An expenditure of $1,455,000 has been involved on contracted construction work on the Columbia River and Old Oregon Trail Highways during the biennium.

The Dalles-California Highway, U. S. No. 97 and Oregon Nos. 23 and 50: A major improvement on The Dalles-California Highway was the elimination of the grade crossing of the railroad tracks of the Oregon Trunk Railway on Third Street in Bend, which project involved the construction of a reinforced concrete and steel structure carrying the railroad tracks across the depressed highway, the grading and bituminous macadam surfacing of 0.55 mile of highway roadbed and the widening of shoulders on 3.2 miles of highway. Another project of merit is the grading, surfacing and oiling of the Crooked Creek-Modoc Point Section in Klamath County, 14.4 miles in length. This project involved the construction of a new bridge over the Williamson River, the construction of a structure over the main line tracks of the Southern Pacific Company and 12.6 miles of entirely new highway location. Work on the project was started in May of 1938, and was completed in September of 1940. The new construction eliminates a dangerous railroad grade crossing and several hazardous road turns. Between Barclay Springs and Algoma, a flooded condition of the highway was experienced in May of 1940, due to the unexpected rising of the water level in Upper Klamath Lake. This unforeseen and unpredictable emergency was met by the reconstruction of 1.8 miles of highway roadbed to improved width and grade, the work being performed by State forces with little interruption to the flow of traffic. Expenditures involved on construction work on The Dalles-California Highway during the biennium amounted to $550,000.

John Day Highway, U. S. No. 28 and Oregon No. 19: During the period covered by this report, approximately 21 miles of grading, 36 miles of surfacing and 111 miles of oiling has been performed under contract, representing an expenditure of $454,000. Between Fossil and the town of John Day, 64.83 miles of re-oiling has been performed in either direction from Mule Shoe Creek at which location an improvement in alignment involved the construction of a new bridge structure and 1.04 miles of grading, surfacing and oiling. The biennium has witnessed the completion of the John Day-Prairie City Section to a high standard highway, the work consisting of 8.17 miles of grading and surfacing and 13.1 miles of oiling. On the Austin Junction-Unity Section, 4.73 miles of grading has been performed to provide improved width, grade and alignment to the highway and the entire section, 20.23 miles in length, has been surfaced and oiled to improved status throughout. The 7.04-mile section of highway between Jamieson and Lancaster has been regraded, surfaced and oiled, providing improved width, grade and alignment to the traveling public.

Central Oregon Highway, Oregon No. 54: During the biennium, the contracted improvements on the Central Oregon Highway amounted to 30.00 miles of regrading, 74.53 miles of surfacing and 134.14 miles of oiling. On the Horse Ridge-Harney County Line Section, 27.36 miles of the highway was regraded to improve the grade and shoulder-width of the roadway, and the entire distance of 65.99 miles was surfaced and oiled to improved standards. Between Buchanan Ranch and Juntura, 2.64 miles of grading on revised alignment was performed to eliminate many sharp road turns, and the entire section, 33.63 miles in length, was surfaced and oiled. The Juntura-Harper Section has been re-oiled over its entire length of 34.52 miles. Expenditures for construction work by contract on the Central Oregon Highway during the biennium amounted to $508,000.

Oregon-Washington Highway, Oregon No. 11: Construction work on the Oregon-Washington Highway during the biennium has been concentrated on the construction of an entirely new location of the highway between Pendleton and Adams. The new route, 12.02 miles in length, has been graded and surfaced with a bituminous macadam surfacing to high standards of construction. The revised location replaces the former inadequate and narrow highway with its many sharp turns. Another project of merit performed during the biennium is the improvement in the south entrance to Milton, which involved 0.51 mile of grading and paving on revised alignment at the south city limits and the widening of 0.44 mile of pavement to facilitate the free flow of highway traffic through the city. Contracts involving an expendiure of $290,000 have been awarded during the biennium on the Oregon-Washington Highway.

Oregon Coast Highway, U. S. No. 101: Several noteworthy projects have been constructed or undertaken on the Oregon

Coast Highway during the biennium. The planned re-routing of the highway through Astoria has been continued by the grading of 0.43 mile of revised alignment and the construction of 0.62 mile of four-lane pavement on the Taylor Avenue-Astor Street Unit of the project. On the present highway route between Cannon Beach junction and the Wolf Creek junction, a new bridge has been constructed over the Necanicum River to replace one of extremely narrow width. The improvement of the proposed new route of the highway through Cannon Beach and southerly along the coast line to Manzanita Beach has been highlighted by the completion of the grading of the Arch Cape-Short Sand Beach Section, 2.18 miles in length, the paving of the Arch Cape tunnel and the contracting of the grading on the Necarney Creek-Neahkahnie Mountain Section. The grading work on the last-named section is well advanced as this report is written and, upon its completion, a well-graded roadbed will be provided throughout the length of the new route. It may be of interest to note that a contract for the bituminous macadam surfacing of the entire new route has also been contracted for performance during 1941. Preparatory to the later construction of a wide and adequate highway through the congested district at Depoe Bay, the bridge at that location has been widened during the biennium to provide a 50-foot roadbed width with 5-foot sidewalks on either side and a subway walk to permit pedestrians to cross from side to side of the structure under the highway roadway. As a part of the proposed new highway from North Bend through Marshfield to Bunker Hill, the biennium has witnessed the construction of a new bridge on revised alignment across Coalbank Slough and the grading and construction of four-lane pavement on a section 1.16 miles in length from that point southerly to Bunker Hill. These units of construction replace a "bottleneck" of long standing at the south entrance to Marshfield. From Coquille southwesterly a distance of 2.95 miles, the highway has been widened, surfaced and oiled. 0.59 mile of grading and bituminous surfacing through the main business district of Bandon has been contracted and, when finished, will provide a four-lane roadbed properly planned to fit well with the future development of the city. Contracts awarded during the biennium for work on the Oregon Coast Highway involved the expenditure of $1,010,000.

Enterprise-Lewiston Highway, Oregon No. 3: During the biennium, the Federal Works Agency of the Public Roads Administration has completed the grading of an additional 2.45 miles of grading between Flora and the Washington State line on the Enterprise-Lewiston Highway at a cost of $190,000.

Baker-Homestead Highway, Oregon No. 86: Improvements to the Baker-Homestead Highway by contracted work during the period covered by this report consist of 24.90 miles of surfacing and 25.04 miles of oiling between Black Bridge and Halfway. The cost of this improvement was $74,400.

Baker-Unity Highway, Oregon No. 7: Work performed on this highway during the biennium consisted of the construction of 2.75 miles of surfacing and 6.07 miles of oiling on the Baker-Salisbury section. The cost of this project was $17,200.

Santiam Highway, Oregon No. 54: The biennium has witnessed the completion of the grading on this highway; 1.53 miles under state contract and 2.44 miles by the Public Roads Administration. Nine miles have been surfaced and oiled between Trout Creek and Toll Creek on the west slope of the Cascades under State contract and 4.40 miles have been surfaced and oiled by the Public Roads Administration between the junction with the North Santiam Road and Hogg Rock. The entire route is now open to travel. Contracts awarded during the biennium on the Santiam Highway involved an expenditure of $565,000.

Willamette Highway, Oregon No. 58: Improvement of the Willamette Highway has progressed rapidly during the biennium and consisted of 3.90 miles of grading, 64.14 miles of surfacing and 65.74 miles of oiling. Of the above improvements, the Public Roads Administration contracted for the lining and paving of the Salt Creek tunnel, 0.18 mile in length; the grading of the Tunnel-Salt Creek Falls Section, 0.31 mile in length; and the surfacing and oiling of the Oakridge-Salt Creek Falls Section, 21.15 miles in length. Contracts awarded by the State included 13.05 miles of surfacing and 14.65 miles of oiling on the Pleasant Hill-Oakridge Section, which had been unoiled since its construction; and 3.59 miles of grading and 29.94 miles of surfacing and oiling on the section extending from Salt Creek Falls to the easterly terminus of the highway. The improve-

ON WILLAMETTE HIGHWAY NEAR SALT CREEK TUNNEL IN LANE COUNTY

WILLAMETTE HIGHWAY AT LOGGING RAILROAD UNDERCROSSING
EAST OF ODELL LAKE

ments now provide an oiled roadbed surface throughout the entire length of the highway. Contracts awarded during the biennium involved an expenditure of $720,300 for work on the Willamette Highway.

Fremont Highway, Oregon No. 31 and U. S. No. 395: The work performed on the Fremont Highway during the biennium has consisted of 18.14 miles of grading, 51.41 miles of surfacing and 107.58 miles of oiling and re-oiling work. Of these improvements, the Public Roads Administration performed 0.81 mile of grading and 8.6 miles of surfacing and oiling on the Chandler Park-White Rock Section, the balance of the improvements being performed by State contracts on the Lapine-Horse Ranch and Silver Lake-Chalk Cliff Sections. The entire highway presents an oiled macadam riding surface for the traveling public. Contracts awarded during the biennium involved an expenditure of $381,000 for work performed on the Fremont Highway.

Klamath Falls-Lakeview Highway, Oregon No. 66: Work performed on the Klamath Falls-Lakeview Highway has consisted of 13.09 miles of grading and 33.89 miles of surfacing and oiling. Of this improvement, the Federal Works Agency of the Public Roads Administration performed 6.64 miles of grading and 8.26 miles of surfacing and oiling on the Drews Reservoir and Dog Lake-Forest Boundary Sections. Other improvements made include 0.51 mile of grading, surfacing and oiling at Dairy; 0.42 mile of grading and 10.17 miles of surfacing and oiling between Bly Mountain and Beatty; 1.45 miles of grading and 8.89 miles of surfacing and oiling on the Devils Garden-Quartz Mountain Section; and 4.07 miles of grading and 6.06 miles of surfacing and oiling between Cottonwood Creek and Lakeview. The improvements have served to improve the grade and alignment of the highway route and to provide wider and smoother travel surfaces. Contracts awarded during the biennium involved the expenditure of $526,500 for the work on the Klamath Falls-Lakeview Highway.

Crater Lake Highway, Oregon No. 62: A section between Eagle Point and Hog Creek, 0.50 mile in length, has been regraded and paved with an experimental type of concrete pavement consisting of screened gravel aggregates and less than standard cement content. The purpose of the experiment is to evolve a type of construction suitable for the support of heavy loads on low resistant subgrades at locations where heavy rock bases would be prohibitive in cost. The cost of the project was $22,900.

Pendleton-John Day Highway, U. S. No. 395: An improvement has been made during the biennium at the east entrance to Pilot Rock and consists of the construction of a new reinforced concrete bridge over East Birch Creek and the grading, surfacing and oiling on revised alignment of 0.34 mile of roadbed. The improvement has eliminated two right-angle turns in Pilot Rock and has provided four-lane oiled surfacing within the developed business district traversed by the revision. The section between Mountain Rest and Mt. Vernon, 7.18 miles in length, has been oiled. The Public Roads Administration has graded and surfaced 1.51 miles of the highway on the Beech Creek-Summit Section. Contracts awarded during the biennium for work on the Pendleton-John Day Highway involve an expenditure of $75,000.

Siuslaw Highway, Oregon No. 36: The Low Pass Section, 3.57 miles in length, between Blachly and Low Pass Summit has been regraded, resurfaced and re-oiled to improved standards at a cost of $70,200.

Ochoco Highway, U. S. No. 28: During the biennium, a new bridge has been constructed over the C. O. I. D. canal east of Redmond; 7.68 miles of grading and 10.00 miles of surfacing and oiling has been constructed on revised alignment between the Ochoco Dam and Marks Creek; and 1.67 miles of grading and 1.51 miles of surfacing and oiling has been constructed on a revised alignment at the east entrance to and through the City of Prineville. Expenditures involved on contracts awarded during the biennium on the Ochoco Highway amounted to $269,000.

Umpqua Highway, Oregon No. 38: A section 0.22 mile in length at the east entrance to Reedsport has been improved by the widening and paving to high standards of the highway route through the main business district. The cost of this project was $31,000.

John Day-Burns, U. S. No. 395: On this highway, the Federal Works Agency of the Public Roads Administration has graded on revised alignment 2.65 miles of roadbed on the Bear Creek-Summit Section and 7.43 miles of roadbed on the Forest Boundary-Seneca Section. The cost of these improvements was $136,000.

West Portland-Hubbard Highway: The work performed on this highway during the biennium consisted of the paving of 4.05 miles on the Butteville Road-White School Section at the southerly end of the route. The cost of this work amounted to $127,700.

Warm Springs Highway: During the period covered by this report, 5.14 miles of surfacing and oiling work has been performed on the Warm Springs Agency-Vanora Section, and a new bridge has been constructed over the Warm Springs River about 18 miles north of the Warm Springs Agency. The grading of 1.39 miles of roadbed at the approaches to the Warm Springs River Bridge is under construction and will be completed early in 1941. During the biennium, contracts involving an expenditure of $80,000 have been awarded for work on this highway.

Wolf Creek Highway, Oregon No. 2: The construction of the Wolf Creek Highway has been carried on during the biennium in part as a Federal Aid project and in part as a WPA project. The highway has now been completed to the status of an oiled macadam surface from the westerly terminus with the Oregon Coast Highway easterly a distance of 31.48 miles to the Sunset Tunnel, about 3 miles east of the junction with the Vernonia-Forest Grove Road at Sunset Camp. Grading work has now been completed by WPA forces between Buxton and the proposed Davies grade separation structure, a distance of 4.4 miles; and between the Barnes Road and the Washington-Multnomah County Line, a distance of 2.7 miles. Work in progress at the time of writing this report consists of the grading by WPA forces of the section from Sunset Tunnel westerly a distance of 4.2 miles to Buxton.

During the biennium, the improvements made under State contracts consisted of the construction of three bridge structures, the construction of abutments for a fourth structure, the construction of 0.17 mile of paved tunnel at Sunset Summit, 38.60 miles of surfacing, 46.51 miles of oiling and re-oiling and 11.07 miles of bituminous macadam wearing surface. These improvements involved an expenditure of $734,000.

Expenditures made during the biennium on the WPA portion of the highway work amounted to approximately $1,706,000, of which approximately $375,700 was contributed by the State and $1,800 by Clatsop County.

Wilson River Highway, Oregon No. 6: During the biennium, the Wilson River Highway has been improved to the status of paved and oiled surface between Tillamook and McNamars Camp, a total distance of 27.4 miles, by the construction of two bridge structures, 0.29 mile of grading and 9.59 miles of surfacing and oiling. These projects, performed under State contracts, involved an expenditure of $217,000.

During the same period, WPA forces have completed the grading of the highway easterly to Glenwood and have performed the clearing and grubbing of an additional 1 mile section from Glenwood to Washburn School. Expenditures made during the biennium on the WPA portion of the highway work amounted to approximately $1,587,000, of which approximately $280,600 was contributed by the State and $53,600 by Tillamook County.

Secondary State Highways

During the biennium, the improvements made on the state secondary highway system have consisted of the construction of four bridge structures, 116.55 miles of grading, 116.69 miles of rock surfacing, 235.78 miles of oil mat wearing surface and 4.90 miles of bituminous macadam wearing surface. The expenditures involved in making the above listed improvements amounted to approximately $1,364,000.

County Roads

During the period covered by this report, the improvements undertaken by State contracts on county roads under the federal aid authorization have consisted of the construction of two bridge structures, 42.69 miles of grading, 71.35 miles of rock surfacing, 82.56 miles of oil mat wearing surface and 7.43 miles of paving. The expenditures involved in making the above listed improvements amounted to approximately $743,000.

CLASSES OF HIGHWAYS

The classes of highways with which the Highway Commission is concerned, and in connection with which it expends the State and Federal funds which are entrusted to it, are as follows:

1. Primary State Highways
2. Secondary State Highways
3. Primary Federal Aid Highways
4. Secondary Federal Aid Highways
5. Public Lands Highways
6. Federal Forest Highways
7. County Market Roads
8. County Roads.

This classification of highways is made necessary by differences in the laws and regulations (state and federal) which govern their selection and control of the different classes and the financing of their construction and maintenance. Some highways are in two or more classes, as it is possible for a primary state highway to be also a primary federal aid highway and a federal forest highway. Likewise, a road may be both a county road and a secondary federal aid highway.

Brief descriptions of the several different classes of highways are given in the paragraphs which follow:

Primary State Highways. The first class or group of highways taken over for construction and maintenance under state supervision is known as the primary state highway system. It now comprises 4,783 miles of highways and in it are the most important highways in the State. It forms the main line network for the State's transportation system.

A primary state highway system was designated by the State Highway Commission in 1914. In 1917, however, this system was very radically revised and extended, first, by the State Legislature, and, second, by the State Highway Commission. Additions to this revised system have been made from time to time by the State Legislature and the Highway Commission, both of which bodies are empowered to designate state highways.

Financial responsibility for the construction of primary state highways rests with the State. Approximately three-

PORTLAND CEMENT CONCRETE PAVEMENT ON WEST PORTLAND-HUBBARD HIGHWAY AT SOUTHERN PACIFIC UNDERCROSSING

fourths of the highways in this system are also included in the primary federal aid highway system, however, and are, therefore, eligible to have federal aid funds expended upon them.

A complete list of the highways included in the primary state highway system is given in Table 27 in Section Three of this report.

Secondary State Highways. Laws were enacted by the State Legislature during the 1931 legislative session which provided for the establishment of a State Secondary Highway System.

This Act provided that a system of secondary state highways shall be selected from the system of market roads, county roads, available locations, or routes in the several counties, and required that each secondary highway placed on, or removed from the system, shall be mutually agreed upon by the State Highway Commission and the county court of the county in which the highway is located, appropriate resolutions being adopted and entered in the records of the State Highway Commission and the county court journal.

This Act became effective January 1, 1932, and since that date a system of state secondary highways has been created which now totals 2,348 miles.

The 1931 Act required that the system was to be financed by state highway revenues and the funds therefor were to equal the amount which would be raised by a one-mill property tax levy; the funds to be allocated to each county on the basis of each county's assessed valuation and each county's tax ratio as established by the State Tax Commission, provided that not more than 10 per cent of the total sum available could be expended in any one county in any year.

The 1931 Act provided that the counties could perform construction and maintain the secondary highways with county forces under the supervision of the State Highway Engineer and be reimbursed therefor from state highway funds.

A number of the counties took advantage of this feature of the Act and during the year 1932, several miles of secondary highways were constructed by county forces and several hundred miles were maintained with county maintenance organizations.

The sum of money available for state secondary highways was slightly in excess of $1,000,000 for the year 1932. The legislative session of 1933 amended the Act and provided a base of $450,000 for state secondary highways. The basis of allocation was not changed, however, but that part of the Act which permitted the counties to perform construction and maintenance with county forces was repealed, and the responsibility for construction and maintenance was placed in the State Highway Commission.

This reduction in the base amount for secondary state highways and the reduction of state highway revenues curtailed new construction on the secondary highway system for a time, and practically all funds available were used for maintenance.

Prior to the year 1935, the counties were required to provide rights of way where necessary. An Act of the 1935 legislative session relieved the counties of this obligation and since that year all rights of way have been acquired by the State.

The 1939 Legislature passed an Act known as the "State Highway Code". This Act repealed that part of the law which provided for a basic allocation of funds to the counties for secondary highways and no limitation is now placed on the allotment of funds.

That part of the 1931 Act which provided the method of placing secondary highways on the system and removing them was not repealed.

In 1935 work relief funds were provided by the Federal Congress for use by the states for the improvement of highways. The regulations provided that at least 25 per cent of these funds available to a state should be expended for the construction of secondary highways or feeder roads. A portion of these funds was allocated and expended on county roads, the counties being required to provide the necessary rights of way and to maintain the projects after construction. The balance of these funds was expended on the state secondary system.

The Federal Congress on June 16, 1936, passed an Act providing for the establishment of a Federal Aid system of secondary highways and feeder roads, and as a result of this Act the state secondary highway system has benefited to a considerable extent.

During this biennium and the one immediately preceding, state funds have been available for secondary highway construction, and with federal funds appropriated by Congress many miles of secondary state highways have been constructed. Many miles of the state secondary system are of crushed gravel or crushed rock surfacing, and, while the alignment and roadbed width do not meet the most modern standard, the roadways serve the traffic which they carry. These surfaces, however, deteriorate rapidly and maintenance costs are unduly high. An oiling program has been carried on during the last two years. Projects have been selected where it seems impracticable to reconstruct the roadbed for several years and the existing surfacing has been oiled, alleviating the dust nuisance, reducing the driving hazard, and lowering maintenance costs. This program has met with universal approval and has justified the expenditures made.

SILVER CREEK FALLS SECONDARY HIGHWAY WEST OF SHAW, GRADED AND SURFACED IN 1939

Information in tabular form appears in other sections of this report, setting forth by counties the expenditures made on secondary state highways and the present status of secondary highway improvement.

Primary Federal Aid Highways. The Primary Federal Aid System of highways comprises those highways which have been designated under authority of the Federal Highway Act of 1921 as highways eligible to have regular federal aid funds expended upon them. The highways in this system are selected and designated by mutual agreement between the Highway Commission and the Federal Public Roads Administration. The total mileage of highways of this class is limited to 8 per cent of the total mileage of public roads in existence in 1921, which places the limit for the State of Oregon at 3,346.1 miles, exclusive of miles within national forests and other federal reservations. The total mileage in the system at present is 3,287.8 miles, plus 522.7 miles which are within national forests and reservations.

Regular federal aid funds allotted to the State of Oregon for use on primary federal aid highways for the fiscal years 1939 to 1942 were as follows:

Fiscal year 1939	$2,048,413
Fiscal year 1940	1,638,823
Fiscal year 1941	1,884,937
Fiscal year 1942	1,639,000

A complete listing of the Primary Federal Aid Highways in Oregon is given in Table XVI in Section II of this report.

Secondary Federal Aid Highways. On June 16, 1936, there was approved an Act, passed by the Federal Congress, which amended the Federal Highway Act of July 11, 1916, and which among other things provided funds for the years 1938 and 1939 for the improvement of secondary or feeder roads, including farm to market roads, rural free delivery mail roads, and public school bus routes. Rules and regulations to carry out the provisions of the Act were approved by the Secretary of Agriculture February 9, 1937. Under these regulations, it was provided that the funds apportioned to any state shall be applied to projects, essentially rural in character, which are not a part of the Federal Aid System or potential additions to the Federal Aid System. These regulations, therefore, made these funds available for use on that part of the state system of highways which are not a part of the Federal Aid System, the State Secondary Highway System, and for use on county roads which can qualify as farm to market roads, mine to market roads, rural free delivery roads, public school bus routes, and other rural roads of community value.

Further regulations under date of February 12, 1937, provided that a secondary or feeder road project shall be undertaken in not less than 50 per cent of the counties of a state from the combined funds for the years 1938 and 1939.

Later regulations issued made provision for the designation of a system of Federal Aid Secondary Highways and Feeder Roads, this system to be 10 per cent of the rural mileage of roads in the State as determined by the State-wide highway planning survey. Pending the completion of this survey, projects were initiated for the improvement of sections of State primary and secondary highways and county roads, which were called interim projects.

Under this program, 71 projects have been constructed or placed under contract in 32 of the 36 counties of the State, 33 of these projects being on county roads and 38 on the State Primary or Secondary Highway System. As a result of this program, there have been or will be improved 133.56 miles on the State Primary and Secondary Highway System at a cost of $874,000, and 109.07 miles on the county road system at a cost of $1,023,000.

In performing the work under the Federal Secondary Highway program, the State Highway Commission adopted a policy of matching the Federal moneys with State Highway funds, and does not require the counties to contribute funds for construction; the counties are required to furnish rights of way and to maintain the projects after they have been completed. Oregon is one of the few states in the nation which match the Federal funds for county road construction on the county road portion of the Federal Secondary System. Most states require the counties to match this Federal money with county funds. It has also been the policy of the State Highway Commission to allocate the funds available for Federal Secondary Highways and Feeder Roads, insofar as practicable 50 per cent to projects on the state highway system, and 50 per cent to projects on county roads.

On July 17, 1937, instructions were issued by the Public Roads Administration, setting forth regulations for the use of data assembled by the State-wide planning survey to determine highways or roads eligible for inclusion in the Federal Aid Secondary Highway and Feeder Road System. Further instructions have followed from time to time. Under date of March 15, 1939, rules and regulations were issued by the Public Roads Administration for the funds made available for the year 1940 and subsequent authorizations. These regulations provided that secondary highway or feeder road projects shall be undertaken in not less than 25 per cent of the counties in a state, also that when a state has selected a reasonably large portion of the mileage of secondary highways and this mileage was approved by the Public Roads Administration, projects could be undertaken

FEDERAL AID SECONDARY PROJECT ON COUNTY ROAD NORTH OF ALBANY

FEDERAL AID SECONDARY PROJECT ON WHEATLAND JUNCTION-SALEM COUNTY ROAD without regard to their location on or off the state highway system. Early in 1939 the State Highway Commission decided to recommend to the Public Roads Administration a partial system of Federal Aid Secondary Highways and Feeder Roads which would be approximately 25 per cent of the total mileage available for the State. By this time, the data assembled by the State-wide planning survey was available, and it was found that the State of Oregon was entitled to 4,933.5 miles of highway for the Federal Aid Secondary Highway and Feeder Road System.

To determine the number of miles of Federal Aid Secondary and Feeder Roads to which each county was entitled, the following formula, recommended by the Public Roads Administration, was used: one-third population, one-third farm area, and one-third vehicle miles of travel per 24 hours on the rural roads and highways. This formula determined on a percentage basis the number of miles to be allocated to each county.

To determine which of the roads and highways were eligible for consideration and in order to recommend a partial system of secondary highways and feeder roads, a large amount of data was assembled and analyzed. Traffic data were placed upon maps, cost estimates prepared, and economic data relating to probable revenues from road users studied on a total of 10,800 miles of State Primary Highways, State Secondary Highways and county roads.

From this data a partial system of secondary and feeder roads has been selected and recommended to the Public Roads Administration for approval.

This partial system totals 1,320.5 miles, of which 169.7 miles are a part of the State Primary Highway System; 727.3 miles a part of the State Secondary Highway System; and 423.5 miles are county roads.

The Federal Aid Secondary Highway and Feeder Road funds available from Federal sources for 1938, were $418,474; for 1939, $409,683; for 1940, $245,823; and for the year 1941 will be $245,861. From State funds, there were expended for 1938, $311,826; for 1939, $369,517; for 1940, $235,177; and it is expected that the funds for 1941 will total $205,139. The counties report that, during the years 1938 and 1939, they have expended the following sums on the Federal Aid Secondary Highway and Feeder Road System: for rights of way, $27,142.43; for construction, $59,318.95; for maintenance, $15,257.06; a total of $101,718.44.

Public Lands Highways. Public lands highways are highways or parts of highways which, because of their being on unappropriated and unreserved public lands, Indian reservations or other federal reservations, are eligible to have Public Lands Highway Funds expended upon them. No definite system has been designated for this class of highways, but to date use of the Public Lands Highways Funds has been confined almost entirely to the Warm Springs Highway across the Warm Springs Indian Reservation and the I. O. N. Highway in Malheur county.

Federal allocations of Public Lands Highway Funds for the fiscal years 1939 to 1942 were as follows:

Fiscal year 1939	$167,394
Fiscal year 1940	60,542
Fiscal year 1941	129,201
Fiscal year 1942	100,000 (Approx.)

Of the 1941 allotment, only one-half has been released for contracting and there is possibility that the other half may be withheld permanently.

Federal Forest Highways. The Federal Forest Highway System comprises such main highways within or across national forests as have been designated by the Federal Forest Service, the Public Roads Administration and the State Highway Commission for improvement with federal forest highway funds. A list of the highways included in this system is given in Table XVII.

Allotments of federal funds for Forest Highways in Oregon have averaged about $1,200,000 per year for the past several years. Of the 1941 allotment, however, only slightly more than $100,000 was released for contracting, and there is no assurance that the remaining portion of the allotment will be released later.

Construction work financed with Forest Highway Funds is contracted and supervised by the Public Roads Administration. The Highway Commission has a voice in the selection of the projects to be undertaken, however, and in matters of location and standards of construction.

County Market Roads. The State Legislature in 1919 passed the Market Road Act which, when it was approved by a referendum vote of the people, provided for the establishment of a farm to market road system.

This Act also provided for the financing of this system by requiring the levying of a one-mill State tax levy on all the property in the State, this State tax levy being apportioned to the counties by order of the State Highway Commission on the basis of each county's assessed valuation and each county's tax ratio as established by the State Tax Commission, and requiring each county to levy an equal amount on the property in each county, and further provided that no apportionment to any county should exceed 10 per cent of the total amount levied in the entire State for any year.

The roads which became a part of this system were designated by the county court and approved by the State Highway Commission, as provided in the Market Road Act.

Under the provisions of the Act and subsequent amendments by the legislature, the construction and maintenance of the Market Road System was performed by county forces pursuant to surveys, plans and estimates, prepared by the counties, or by engineers of the State Highway Department when approved by the State Highway Commission. In a number of counties market road construction was performed by contract, particularly the construction of bridges which required equipment and organizations which the counties did not have.

The 1931 Legislature repealed that part of the Act requiring a one-mill State levy, and placed the responsibility for the Market Road System in the county courts by repealing the requirement that supervision and control of the work be under the direction of the State Highway Commission.

The county court of any county may still provide market road funds for construction and maintenance by uniform levy on all the taxable property of the county, as this part of the Act remains in effect.

Several provisions of the Act remain in effect, the section pertaining to bridges, requiring plans and specifications for all bridges and culverts to be furnished without cost to the county, by the State Highway Commission, and constructed in accordance therewith, and the section requiring an annual inspection of all bridges on the Market Road System under the supervision of the State Highway Commission, are particularly important. The State Highway Commission, through its engineering staff, also continues to furnish the counties engineering advice, when such advice is requested by the county courts and engineers.

The mileage of market roads now a part of the Market Road System is approximately 4,300 miles, a reduction of some 2,000 miles from the system which existed on December 31, 1931, when the State Secondary Highway System was created.

On December 31, 1931, the Market Road System totaled 6,273.71 miles of road, and there had been expended thereon for construction and maintenance, a total of $33,279,172.23, of which amount there had been provided by State levies $12,722,069.80.

Many of the counties continue to levy a market road fund, and reports received from these counties indicate they have expended $555,913.73 for the year 1938, and $721,310.68 for the year 1939 for construction and maintenance of market roads.

County Roads. Beginning with the year 1935, when the Federal Congress passed an Act providing federal relief funds for highway construction, and provided that a portion of these funds be used for improvement of county roads, and continuing under the Federal Act of 1936 and subsequent appropriations by Congress, the State Highway Commission has undertaken and carried out a considerable program of county road improvement.

The funds provided by the Act of 1935 were expended on county roads in one-third of the counties of the State, 33 projects being completed under this program, totaling 94.0 miles. Five of these projects were highway and railroad grade separation projects in Multnomah county. The funds expended under this program by the State were provided by the Federal Government, and the expenditures made from State funds were for surveys and engineering. A few counties expended county funds for surfacing and providing crushed materials for oiling. The counties also provided necessary rights of way, and maintained the projects.

The Federal Act of 1936, which made funds available beginning with the year 1938 for secondary highways and feeder roads, has also permitted a substantial program of county road improvement, 33 projects having been completed or are under contract in 22 counties of the State, totaling 109.07 miles, consisting principally of grading, surfacing and oiling.

Several counties have contributed toward the cost of this work either in cash or by performing the grading and surfacing required. Necessary rights of way have been provided by the counties, and maintenance of these projects is an obligation of the county. Maintenance agreements are entered into between the county officials of the county in which a project is located and the State Highway Commission, and provides that the county shall make available sufficient funds each year to maintain the project in a manner satisfactory to the State Highway Engineer and the Public Roads Administration.

The funds provided for secondary highways and feeder roads by the Federal Government under the Act of 1936 and subsequent appropriations, must be matched by the State or by political subdivisions thereof and must be under the direct control of the State Highway Department.

The Oregon State Highway Commission has established the policy of matching the federal funds and does not require the counties to assist in financing the program. The cooperative basis of matching the federal fund in this State is: Federal 61.64 per cent; State 38.36 per cent. Tabular data showing expenditures, classification of work performed, mileages completed in the several counties, are given in another section of this report.

While this program of road improvement has been of considerable benefit to the counties, the limited funds available cannot be expected to improve all of the large mileage of county roads which are a responsibility of the counties of the State. The State-wide traffic survey and road inventory made in 1936 and 1937 by the State Highway Department and Federal Government discloses that in 1937 there were 30,018.1 miles which were maintained by the counties.

During the years 1920 to 1930, inclusive, the counties were able to levy substantial sums for road improvement, and the taxes raised, together with bond issues voted by most of the counties, provided considerable sums of money for county roads. Since 1931, the funds available to the counties have decreased from the former level, due to reductions in property values and the demand for tax reductions; also, since 1931 many counties have paid off all or a large part of their road bonds.

Reports submitted by the counties indicate that there has been expended on county roads by the counties, during the calendar years 1938 and 1939, the sum of $9,912,677.

FINANCIAL REPORT

By Office Engineering Department

S. H. PROBERT, *Office Engineer*

Sources of State Highway Income

State funds now being utilized in the construction, maintenance and operation of State Highways are derived from road-user taxes and fees as follows:

1. Gasoline tax
2. Motor vehicle license fees and operators fees
3. Motor transportation fees
4. Fines for traffic law violations.

Of the revenues yielded by these taxes and fees, 15.7 per cent is allotted to the counties for use on county roads. From these revenues, also, an additional amount approximating 2.2 per cent is appropriated by the State Legislature for use by the State Police Department. The remaining 82.1 per cent is placed at the disposal of the State Highway Commission for use on state highways.

The State funds above referred to are supplemented each year by cooperative funds from the Federal Government and, to a very limited extent, by cooperative funds from counties and other agencies.

The following tabulation gives an idea of the amounts that have been received from state and federal sources during the past few years for use on state highways, and indicates the trends in those amounts.

Calendar Year	*State Funds*	*Federal Funds*	*State Plus Federal Funds*
1935	$ 9,056,106	$ 4,165,503	$13,221,609
1936	10,243,742	6,375,343	16,619,085
1937	10,921,069	4,589,895	15,510,964
1938	10,668,916	2,873,802	13,542,718
1939	11,771,365	2,652,475	14,423,840

Incomes and Disbursements, 1939 and 1940

A fully detailed statement of the actual income for the calendar year 1939 and of the probable income for the calendar year 1940 are given in the accompanying Table XI.

TABLE XI

Incomes for Calendar Years 1939 and 1940

Source of Income	1939 (Actual)	1940 (Estimated)
State Funds:		
Motor vehicle license fees (net)	$ 2,959,668	$ 2,900,000
Gasoline tax (net)	10,271,168	11,300,000
Motor transportation fees (net)	921,473	1,104,000
Fines for traffic law violations	23,658	30,000
Cash discounts (entered as credit items in 1939)	....	10,000
Totals	$14,175,967	$15,344,000
Less contributions to state police	340,134	352,000
Less contributions to counties	2,064,468	2,235,000
Total receipts of state funds for highway purposes	$11,771,365	$12,757,000
Cooperative Funds:		
1934-1938 federal funds	$ 1,054,688	$ 399,000
1939 federal aid funds	702,381	831,000
1939 federal lands highway funds	95,802	29,000
1939 federal secondary funds	198,792	144,000
1939 federal grade separation funds	217,476	110,000
1940 federal aid funds	42,927	896,000
1940 federal lands highway funds	....	54,000
1940 federal secondary funds	....	116,000
1940 federal grade separation funds	....	15,000
1941 federal funds	....	100,000
Federal PWA funds	340,409	180,000
County cooperative funds	9,480	4,000
Miscellaneous cooperative funds	12,203	31,000
Total receipts of cooperative funds	$ 2,674,158	$ 2,909,000
Total, all receipts	$14,445,523	$15,666,000
Balance on hand, beginning of year (exclusive of revolving fund balance)	457,965	1,075,000
Total amount available for disbursement	$14,903,488	$16,741,000

The indicated increase of approximately $1,220,000 in the total receipts for 1940, as compared with those of 1939, consists of an increase of $985,000 in state funds and an increase of $235,000 in federal aid income. This increase of $985,000 in state funds is considerably greater than normal as the normal annual increase is from 2 to 4 per cent ($250,000 to $500,000) and should, within a few years, drop to 2 per cent or less as the rate of increase cannot long continue at a rate materially greater than the rate of increase in population.

A statement listing the disbursements made during the calendar years 1939 and 1940 appears in Table XII. For some

TABLE XII

Expenditures for Calendar Years 1939 and 1940

Class of Expenditure	*1939 (Actual)*	*1940 (Estimated)*
Capital Outlays:		
1935-1938 federal projects	$ 1,351,313	$ 165,000
1939 federal aid projects	1,585,359	1,326,000
1939 federal lands projects	124,317	25,000
1939 federal secondary projects	513,693	135,000
1939 federal grade separation projects	313,093	223,000
1940 federal aid projects	359,871	1,950,000
1940 federal lands highway projects	10,381	85,000
1940 federal secondary projects	....	377,000
1940 federal grade separation projects	....	89,000
1941 federal projects	....	800,000
Federal PWA construction projects	724,808	1,000
WPA Wolf Creek and Wilson River projects	316,039	360,000
WPA miscellaneous projects	16,711	5,000
State construction (primary)	214,052	820,000
State construction (secondary)	93,823	220,000
Cooperation in forest road work	35,000	....
Minor betterments (primary)	187,233	235,000
Minor betterments (secondary)	102,307	100,000
Surveys (primary)	152,518	175,000
Surveys (secondary)	26,620	50,000
Surveys (county roads)	34,636	20,000
Property acquisition, field expense	27,100	30,000
Purchase of rights of way, quarries, etc.	562,223	430,000
Purchase of parks	72,376	70,000
Improvement of parks	11,143	30,000
Improvement of maintenance stations	38,308	120,000
Improvement of other properties	1,344	30,000
Equipment purchases, sales, and depreciation	66,516	145,000
Sub-totals for capital outlays	$ 6,940,784	$ 8,016,000
Maintenance:		
Special maintenance (primary)	$ 270,805	$ 315,000
Special maintenance (secondary)	55,957	35,000
General maintenance (primary)	2,296,981	2,425,000
General maintenance (secondary)	584,307	680,000
Maintenance of county road signs	19,796	15,000
Maintenance supervision expense	110,409	115,000
Sub-totals for maintenance	$ 3,338,255	$ 3,585,000
Miscellaneous:		
Administration and general supervision	$ 439,553	$ 455,000
Planning and traffic surveys	60,638	75,000
Travel and information bureau	145,974	110,000
Operation of parks	35,506	40,000
Operation of maintenance stations	22,611	35,000
Drawbridge and ferry operation	43,966	50,000
Increase in revolving fund	50,000	....
Miscellaneous	61,244	73,000
Service and clearing accounts	Cr. 86,273	Cr. 130,000
Bond interest and maturities	2,776,394	2,759,000
Sub-totals for miscellaneous	$ 3,549,613	$ 3,467,000
Totals	$13,828,652	$15,068,000

purposes, however, the following summarization of that table will be found more convenient.

Item	*1939* *(Actual)*	*1940* *(Estimated)*
Bond interest and principal	$ 2,776,394	$ 2,759,000
Maintenance of highways	3,338,255	3,585,000
Construction of highways	5,948,000	6,916,000
Rights of way, parks, surveys, administration, tourist travel promotion and miscellaneous	1,766,003	1,808,000
	$13,828,652	$15,068,000

The increase of approximately $970,000 in the amount expended for construction during 1940 over the amount expended for the same item in 1939 was made possible by the unusual increase in state funds, of which mention was made in the foregoing comments on state highway income.

Of the $6,916,000 estimated expenditure for the construction of highways, including renewals and betterments, $2,874,000 (41 per cent) was contributed by the Federal Government.

Anticipated Incomes for 1941 and 1942

The income for the year 1941 is expected to be unusually high due to the unusually large amount of federal aid collections expected to be made that year. The large increase in state fund income which was experienced in 1940, as hereinbefore commented on, has made possible the matching of an accumulation of federal aid funds which were unmatched during earlier years because state funds for the matching had not been available. The situation will result in federal aid collections for 1941 exceeding similar collections for 1940 by approximately $1,000,000. This increase in federal aid collections coupled with an expected increase of approximately $220,000 in state fund income, is expected to bring the income for 1941 to a total approximately $1,200,000 greater than the total for 1940.

In 1942, federal aid collections will necessarily drop to an amount only slightly greater than the current annual federal aid allocation (about $2,500,000), as only a small amount of federal aid from previous years will be available. This drop will reduce the total income for the year to an estimated $16,016,000, which is $836,000 below the estimated income for 1941.

TABLE XIII

Anticipated Incomes for Calendar Years 1941 and 1942

Source of Income	*1941*	*1942*
State Funds:		
Motor vehicle license fees (net)	$ 2,980,000	$ 2,955,000
Gasoline tax (net)	11,570,000	11,918,000
Motor transportation fees (net)	1,153,000	1,188,000
Fines for traffic law violations	30,000	30,000
Cash discounts	10,000	10,000
Totals	$15,743,000	$16,101,000
Less contributions to state police	354,000	365,000
Less contributions to counties	2,410,000	2,470,000
Total estimated receipts of state funds for highway purposes	$12,979,000	$13,266,000
Cooperative Funds:		
1934-1938 federal funds	$ 180,000	$
1939 federal aid funds	150,000	50,000
1939 federal secondary funds	30,000	
1939 federal grade separation funds	230,000	
1940 federal aid funds	550,000	150,000
1940 federal lands highway funds	7,000	
1940 federal secondary funds	130,000	
1940 federal grade separation funds	160,000	50,000
1941 federal funds	1,530,000	900,000
1942 federal funds	900,000	700,000
1943 federal funds		900,000
County cooperative funds	4,000	
Total estimated receipts of cooperative funds	$ 3,871,000	$ 2,750,000
Total, all estimated receipts	$16,850,000	$16,016,000
Estimated balance on hand, beginning of year	$ 1,673,000	$ 239,000
Sub-total	$18,523,000	$16,255,000
Less estimated balance at end of year	239,000	250,000
Total amount available for disbursement	$18,284,000	$16,005,000

The income from the gasoline tax is expected to increase during 1941 and 1942 at the rate of three (3) per cent. Any greater rate of increase would be excessive as the normal increase in the State's population is only about one and one-quarter (1¼) per cent per year and the normal increase in highway traffic is only about three (3) per cent. The unusually large increase in gasoline tax income during 1940 (approximately 10 per cent) establishes such a high base for the gasoline tax income, that a large increase in 1941 is improbable.

Motor vehicle license fee income is expected to be less in 1942 than in 1941 due to the fact that that income includes the income from motor vehicle operators' license fees which are collectible on a two-year basis and always run much higher in the odd-numbered years than the even-numbered years.

An itemized statement of the anticipated income for the calendar years 1941 and 1942 appears in accompanying Table XIII.

Expenditure Budgets for 1941 and 1942

Expenditures for state highway purposes during 1941 are expected to total approximately $18,284,000. This amount exceeds the expected total for 1940 by about $3,216,000, which increase is made possible by the unusually large income expected during 1941, as hereinbefore explained, and by the fact that an unusually large unexpended balance of funds is being carried from 1940 into 1941.

Expenditures for 1942 are expected to total about $16,005,000, which amount is $2,280,000 less than the amount expected to be expended in 1941. This reduction in expenditure is reflected entirely in the expenditure for highway construction work (capital outlays) and is made necessary by the fact that the carry-over of funds from the previous year will be much smaller in 1942 than in 1941 and to the further fact that collections of federal aid are expected to be much less.

The amounts required to meet interest and principal payments on outstanding bonds (about $2,700,000) remain practically the same as for 1939 and 1940, and represent approximately 16 per cent of the budget total.

The amounts budgeted for highway maintenance show a gradual increase from year to year and must continue to do so because of the increases in the mileages of highways to be maintained and increases in the volumes of heavy traffic using the highways.

Expenditures for capital outlays are budgeted at $10,639,000 for 1941 and $8,485,000 for 1942. These amounts are made up of the following items:

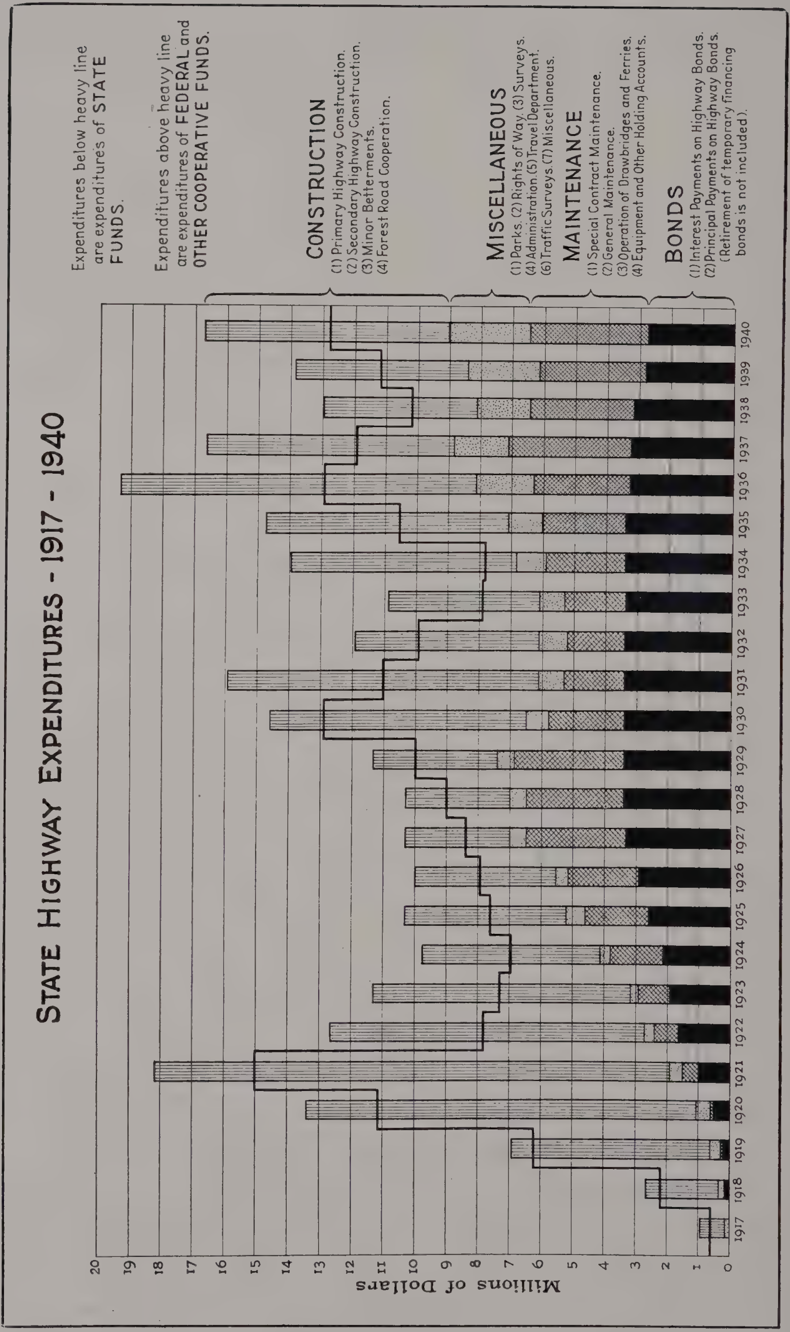
	1941	*1942*
Highway construction (including renewals and betterments)	$ 8,649,000	$ 7,300,000
Surveys	255,000	255,000
Rights of way, quarries, etc.	1,400,000	625,000
Parks	105,000	105,000
Buildings and equipment	230,000	200,000
	$10,639,000	$ 8,485,000

TABLE XIV

Expenditure Budgets for Calendar Years 1941 and 1942

Class of Expenditure	*1941*	*1942*
Capital Outlays:		
1935-1939 federal projects	$ 71,000	$
1940 federal aid projects	670,000	
1940 federal secondary projects	153,000	
1940 federal grade separation projects	180,000	
1941 federal projects	2,950,000	550,000
1942 federal projects	2,200,000	1,400,000
1943 federal projects		2,200,000
WPA Wolf Creek and Wilson River	170,000	
WPA miscellaneous projects	5,000	
State construction (primary)	1,000,000	1,600,000
State construction (secondary)	600,000	900,000
Cooperation in forest road work	100,000	100,000
Minor betterments (primary)	200,000	200,000
Minor betterments (secondary)	100,000	100,000
Surveys (primary)	175,000	175,000
Surveys (secondary)	50,000	50,000
Surveys (county roads)	30,000	30,000
Property acquisition, field expense	30,000	30,000
Purchase of rights of way, quarries, etc.	1,370,000	595,000
Purchase of parks	75,000	75,000
Improvements in parks	30,000	30,000
Improvements at maintenance stations	100,000	150,000
Improvement of other properties	80,000	
Equipment purchases, sales and depreciation	50,000	50,000
Contingency reserve, construction	250,000	250,000
Sub-totals for capital outlays	$10,639,000	$ 8,485,000
Maintenance:		
Special maintenance (primary)	$ 430,000	$ 450,000
Special maintenance (secondary)	50,000	55,000
General maintenance (primary)	2,500,000	2,530,000
General maintenance (secondary)	705,000	725,000
County road signing	20,000	20,000
Maintenance supervision expense	115,000	120,000
Contingencies, maintenance	150,000	150,000
Sub-totals for maintenance	$ 3,970,000	$ 4,050,000
Miscellaneous:		
Administration and general supervision	$ 460,000	$ 470,000
Planning and traffic surveys	75,000	75,000
Travel and information bureau	100,000	100,000
Operation of parks	40,000	45,000
Operation of maintenance stations	35,000	35,000
Operation of drawbridges and ferries	50,000	50,000
Miscellaneous	76,000	76,000
Increase in revolving fund	100,000	
Bond interest and maturities	2,739,000	2,619,000
Sub-totals for miscellaneous	$ 3,675,000	$ 3,470,000
Totals	$18,284,000	$16,005,000

The amounts budgeted for highway construction as indicated in the above table are the amounts that remain available for that purpose after all other requirements of the State



STATE HIGHWAY EXPENDITURES - 1917 - 1940

Highway System are met. As explained in another part of this report, they are inadequate to serve the construction needs of the Highway System.

Federal Cooperation

Federal Funds Available: Federal funds regularly available for cooperation in the work of the State Highway Commission are of four classes, as follows: (1) Regular Federal Aid Funds, (2) Federal Secondary Highway Funds, (3) Federal Grade Separation Funds, and (4) Federal Lands Highway Funds. The amounts of these funds that have become available during the 1939-40 biennium, or that will become available during the 1941-42 biennium, are as follows:

Date of Congressional Act	Class of Fund	Total Authorization	Oregon's Allotment
June 16, 1936	1939 Regular federal aid funds	$125,000,000	$ 2,048,413
June 16, 1936	1939 Secondary highway funds	25,000,000	409,683
June 16, 1936	1939 Grade separation funds	50,000,000	565,844
June 16, 1936	1939 Federal lands highway funds	2,500,000	167,394
	Sub-total, 1939 funds	$202,500,000	$ 3,191,334
June 8, 1938	1940 Regular federal aid funds	$100,000,000	$ 1,638,823
June 8, 1938	1940 Secondary highway funds	15,000,000	245,823
June 8, 1938	1940 Grade separation funds	20,000,000	224,953
June 8, 1938	1940 Federal lands highway funds	1,000,000	60,542
	Sub-total, 1940 funds	$136,000,000	$ 2,170,141
Sept. 5, 1940	1941 Regular federal aid funds	$115,000,000	$ 1,884,937
Sept. 5, 1940	1941 Secondary highway funds	15,000,000	245,861
Sept. 5, 1940	1941 Grade separation funds	30,000,000	335,220
Sept. 5, 1940	1941 Federal lands highway funds	2,000,000	129,201
	Sub-total, 1941 funds	$162,000,000	$ 2,595,219
Sept. 5, 1940	1942 Regular federal aid funds	$100,000,000	$ 1,639,000
Sept. 5, 1940	1942 Secondary highway funds	17,500,000	287,000
Sept. 5, 1940	1942 Grade separation funds	20,000,000	223,000
Sept. 5, 1940	1942 Federal lands highway funds	1,500,000	100,000
	Sub-total, 1942 funds	$139,000,000	$ 2,249,000

Regular federal aid funds and secondary highway funds are apportioned among the states, one-third in proportion to population, one-third in proportion to area, and one-third in proportion to mileage of rural delivery and star mail routes. Grade separation funds are apportioned among the states, one-half in proportion to population, one-fourth in proportion to mileage in the federal aid highway system, and one-fourth in proportion to mileages of railroads. Federal lands highway funds are apportioned only to states in which more than 5 per cent of the total area is "unappropriated or unreserved public lands, nontaxable Indian lands, or other Federal reservations other than forest reservations." The apportionment among those states is in proportion to the area of federal lands of the classes above mentioned.

The federal funds are not turned over to the states in advance of construction. Instead, they are paid to the states in the form of reimbursement during and after the period that the work is in progress. They are paid only on projects for which the plans have been previously approved by the Public Roads Administration and for which the work is conducted in accordance with the applicable requirements established by the Public Roads Administration. The percentages of total cost to which the federal aid is limited are as follows:

Class of Funds	*Limit of Federal Cooperation* *Basic*	 *For Oregon*
Regular federal aid funds	50%	61.64%
Federal secondary highway funds	50%	61.64%
Federal grade separation funds	100%	100.00%
Federal lands highway funds	100%	100.00%

Oregon's variation from the basic limit above indicated comes about through a provision which grants higher rates of cooperation to those states in which unappropriated public lands comprise more than 5 per cent of the total area. The increase in percentage of cooperation accruing through this provision is equal to one-half of the percentage of public land in the State. In Oregon, the percentage of public land is 23.28 per cent. Therefore, the increase in percentage of cooperation is 11.64 per cent.

Federal cooperation in the percentages above stated does not apply to all costs involved in construction projects, but is limited to certain "participating" items. Non-participating items, the cost of which must be borne by the State without cooperation, include rights of way, surveys, use of state-owned equipment, and, under certain conditions, extra work items, temporary construction and overruns of estimates. Actual collections of federal aid are, therefore, considerably below the percentages stated.

Federal aid apportioned to a state must be placed under contract within one year after the close of the fiscal year for which the apportionment is made. Amounts not so contracted revert to the federal government to be redistributed among all of the states. Under this arrangement, the State has about three years in which to use the apportionment for a given year. For instance, the apportionment for the fiscal year 1941 may be used any time during the calendar years 1940, 1941 and 1942. In Oregon, each apportionment is used as early during the three-year period as the availability of state match funds will permit. During the years 1936, 1937 and 1938, the available state funds were insufficient to take up the federal funds as rapidly as they became available and, as a result, there was a considerable accumulation of unmatched federal aid. During 1939 and 1940, however, a large increase in state highway income was experienced, enabling the State not only to match the current allocations of federal funds but to take up the accumulated balance of unmatched funds. The State, therefore, enters the 1941-42 biennium in a position to utilize the available federal aid allocations as rapidly as they are released.

Regular Federal Aid Funds: Regular federal aid funds can be applied only on permanent improvement projects on highways included in the Federal Aid Highway System. A map of the system accompanies this article, and in the accompanying Table XVI there are given the numbers, names and lengths of the highways which comprise the system. The total mileage of federal aid highways is 3,944.53 miles, which is approximately 83 per cent of the total mileage in the Primary State Highway System.

Federal Secondary Highway Funds: Federal secondary highway funds are available for use only on state highways not included in the regular federal aid system and on county roads of such importance that their inclusion in the federal secondary highway system (which is to be adopted in part in 1941) can reasonably be expected. Only 10 per cent of the total mileage of public roads in the State are eligible for inclusion in this federal secondary system.

Reference to Table XV shows the amounts of federal secondary highway funds available for the fiscal years 1941 and 1942 to be $245,861 and $287,000, respectively.

Grade Separation Funds: Federal grade separation funds are available for grade separations, grade crossing elimination and grade crossing protection work on all classes of highways, public roads and streets, there being no limitation to any par-

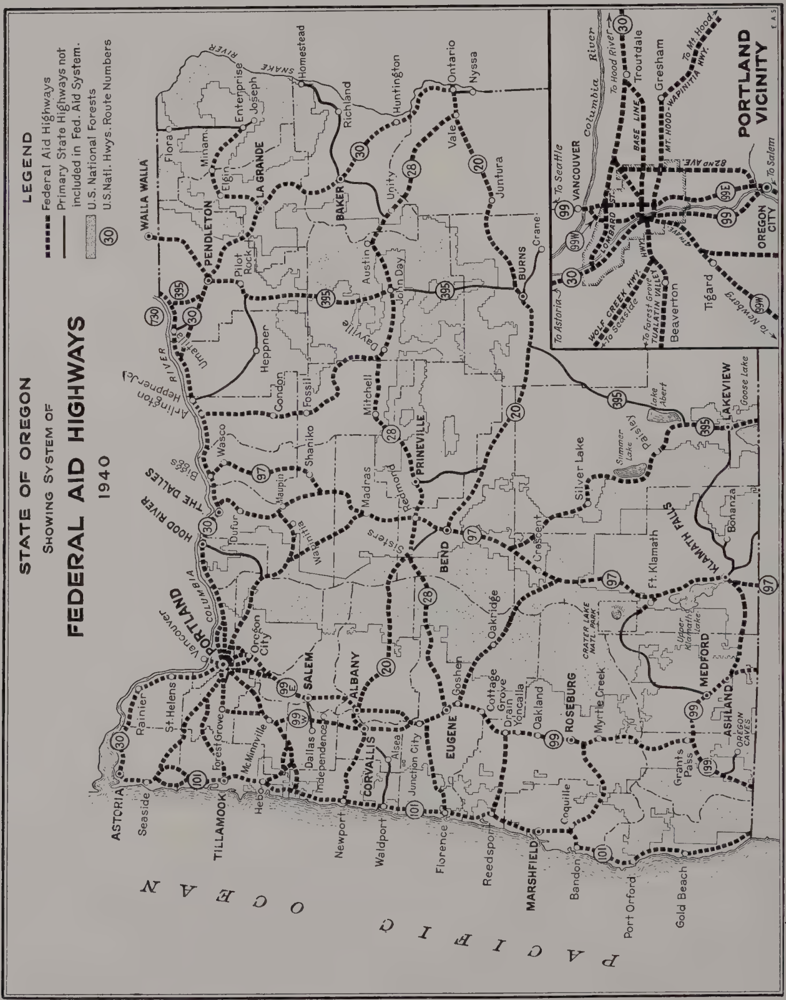


TABLE XV
Mileages of Federal Aid Highways

Federal Route No.	Highway	Total Federal Aid Mileage Inclusive of Miles Within Cities and Reservations	Mileage Within Cities of 2,500 or More	Mileage Within National Forests	Mileage Within Indian Reservations	Total Federal Aid Mileage Exclusive of Miles Within Cities and Reservations
1	Astoria to Ontario	511.33	31.89	29.55	*24.44	425.45
2	Oregon Coast Highway	394.02	10.24	46.38	†0.29	337.11
3	Pacific Highway	337.85	23.12	7.53	....	307.20
4	The Dalles-California Highway	283.11	4.73	24.70	43.18	210.50
5	Eugene to Ontario	385.00	....	86.01	....	298.99
6	Arlington to Rock Creek	123.63	....	....	....	123.63
7	La Grande to Enterprise	66.25	0.46	....	....	65.79
8	Heppner Junction to Pendleton‡	....	....	....	....	....
9	Pacific Highway West	116.04	13.34	....	....	102.70
10	Albany-Corvallis Highway	10.50	0.65	....	....	9.85
11	McMinnville-Tillamook Highway	48.68	....	13.44	....	35.24
12	Sherman Highway	69.00	....	....	....	69.00
13	Ft. Klamath to Crater Lake	6.75	....	0.99	0.98	4.78
14	Coos Bay-Roseburg Highway	61.81	0.29	....	....	61.52
15	Green Springs Highway	56.34	0.98	1.57	....	53.79
16	Fremont Highway	158.23	....	14.25	....	143.98
17	Redwood Highway	42.34	....	0.93	....	41.41
18	Boardman to Wallula	39.49	....	....	....	39.49
19	Pendleton to Washington State Line	36.60	....	....	....	36.60
20	Umpqua Highway	50.13	....	0.57	....	49.56
21	Bend to Burns	131.71	2.59	....	....	129.12
22	Corvallis-Newport Highway	56.91	0.99	....	....	55.92
23	Salmon River Highway	21.92	....	....	....	21.92
24	Portland to Maupin	99.21	6.69	37.04	....	55.48
25	Siuslaw Highway	67.32	....	17.60	....	49.72
26	East Portland-Oregon City	19.51	9.36	....	....	10.15
27	Wolf Creek Highway	65.52	2.31	....	....	63.21
28	Cannon Beach Road	20.96	....	....	....	20.96
29	Willamette Highway	87.17	....	64.12	....	23.05
30	Pendleton to John Day	122.15	1.73	16.67	....	103.75
31	Burns to Vale	114.97	1.01	....	....	113.96
32	Tualatin Valley Highway	42.36	1.82	....	....	40.54
33	Klamath Falls-Weed Highway	14.30	....	....	....	14.30
34	Boyer to Dolph	5.60	....	4.90	....	0.70
35	Tillamook to Banks	54.32	0.48	....	....	53.84
36	Pendleton to Cold Springs	18.50	....	....	....	18.50
37	Santiam Highway	101.30	0.48	53.53	....	47.29
38	Fourth Street entrance to Portland§	....	....	....	....	....
39	Base Line Road	13.00	4.58	....	....	8.42
40	Lombard Street	10.90	7.90	....	....	3.00
41	82nd Avenue	13.30	5.78	....	....	7.52
42	West Portland-Hubbard Highway	17.50	....	....	....	17.50
43	Front Avenue, Portland	2.60	2.60	....	....	....
44	Warm Springs Highway	46.40	....	7.00	27.00	12.40
	Totals	3,944.53	134.02	426.78	95.89	3,287.84

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* Includes 2.20 miles in Celilo Canal Reserve.
† Cape Perpetua Lighthouse Reserve.
‡ Withdrawn from Federal Aid System.
§ Included in Route No. 9.

ticular system or systems of roads or streets. The funds must be so utilized, however, that each main line railroad in the State benefits in approximate proportion to the mileage of railroad operated.

Oregon's allotment of grade separation funds for the fiscal year 1941 is $335,220. For the fiscal year 1942, it will be approximately $223,000.

Federal Lands Highway Funds: Federal lands highway funds can be used only for work on unappropriated or unreserved public lands, non-taxable Indian lands, or other federal reservations other than forest reservations. The locations in Oregon at which these funds can be used advantageously are in the public land areas in the far southeastern portion of the state, in the Warm Springs Indian Reservation and the Klamath Indian Reservation. Use of the funds has been confined, so far, to the I. O. N. Highway in Malheur county, the Central Oregon Highway in Harney county, the Warm Springs Highway in Jefferson county and the Klamath Falls-Lakeview Highway in Klamath county. The I. O. N. Highway and the Warm Springs Highway are being constructed almost exclusively with federal lands highway funds.

Allotments of federal lands highway funds for the fiscal years 1941 and 1942 are $129,201 and approximately $100,000, respectively. However, only 50 per cent of the $129,201 allotment for 1941 has been released for contracting, and it is possible that the remaining 50 per cent will be permanently withheld.

Forest Highway Work

Oregon's allotments of federal forest highway funds for the fiscal years 1940 and 1941 were $898,443 and $1,171,755, respectively. Projects for the 1940 fiscal year were selected at a conference held December 19, 1938, of representatives of the Oregon State Highway Commission, the National Forest Service, and the U. S. Public Roads Administration. The program for the 1941 fiscal year was agreed upon at a similar conference held January 12, 1940. Contracts on the 1940 program were awarded as early as May, 1939, but to the date of December

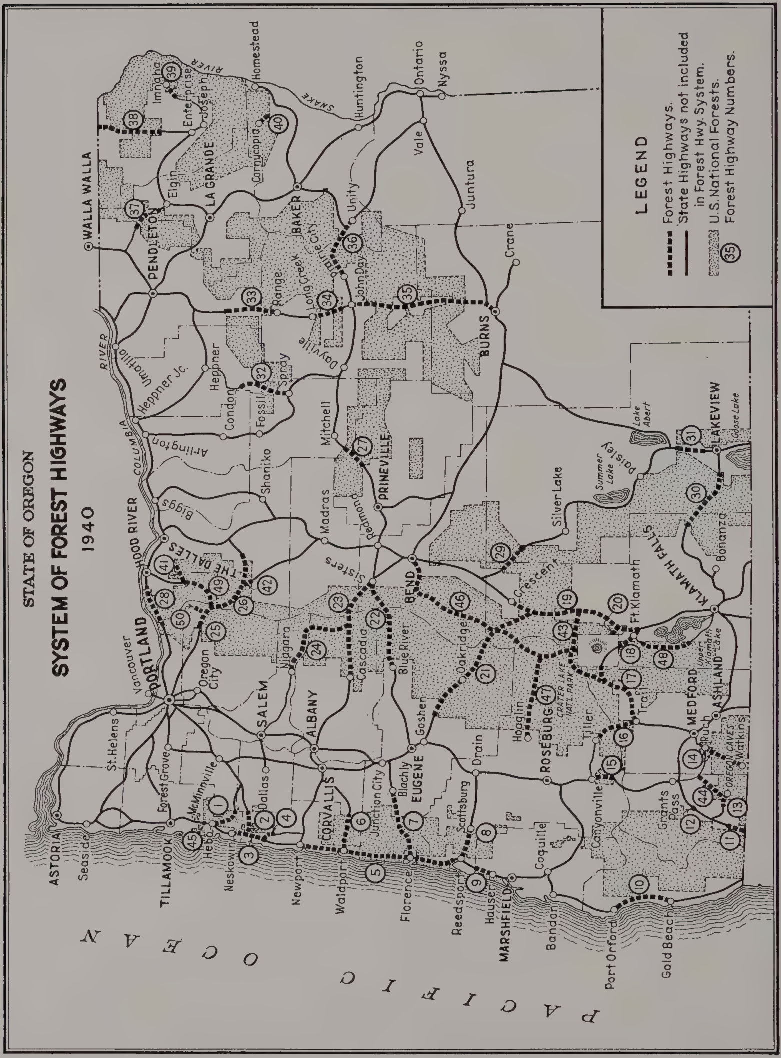
1, 1940, no contract had been let on the 1941 program pending the designation of certain highways as "strategic military roads." During the calendar years 1939 and 1940, completed forest highway construction has consisted of 8 miles of grading, 24 miles of regrading and widening, 15 miles of surfacing, 41 miles of resurfacing, and 55 miles of oiling.

The allotments of forest highway funds to Oregon since 1916 total $22,432,047.89. Out of these federal funds $16,143,833.82 have been expended on the state highway system, to which have been added $5,325,653.49 of state funds and $2,494,560.73 of county funds, making the total expenditure for forest highway construction on state highways amount to $23,964,048.04. This total expenditure has resulted in the completion of 681 miles of grading, 105 miles of regrading and widening, 695 miles of rock surfacing, 58 miles of resurfacing, 135 miles of oiling and 87 miles of bituminous macadam.

All engineering and construction in connection with forest highway projects are handled by the Public Roads Administration. Contracts for construction projects are made with the government. State and county cooperative funds are paid to the government in advance of the letting of contracts, in accordance with signed agreements relating thereto. The use of state or county money for forest highway construction is not mandatory.

Forest highway funds are expended on county roads as well as on state highways. Examples of this may be found on the recently improved section of the North Santiam Road between Detroit and the Santiam Highway junction in Marion and Linn Counties, in the grading and surfacing of the new road to Timberline Lodge near Mt. Hood, and in the improvement started two years ago on the Century Drive in Deschutes County.

It is customary for the government to maintain sections constructed as forest roads for two years after the completion date of the contracts, following which date the State assumes the maintenance of state highways and the counties assume the maintenance of county roads.



STATE OF OREGON

SYSTEM OF FOREST HIGHWAYS

1940

The more important forest highway projects of the biennium on the state highway system are:

Highway	*Section*	*Kind of Work*
Alsea	Alsea River Bridge Section	Grading and bridge
Tiller-Trail	Cushman Ranch-Trail	Grading
Willamette	Tunnel-Salt Creek Falls	Grading
Willamette	Oakridge-Salt Creek Falls	Surfacing and oiling
Santiam	Toll Creek-East	Grading
Santiam	N. Santiam Jct.-Hogg Rock	Surfacing and oiling
Klamath Falls-Lakeview	Dog Lake Road-Forest Bdy.	Grading, surfacing and oiling
Pendleton-John Day	Beech Creek Summit Section	Grading and surfacing
John Day-Burns	Forest Boundary-Seneca	Grading
Weston-Elgin	McDougal Camp-Tollgate	Surfacing and oiling
Enterprise-Lewiston	Buford Creek Section	Grading

TABLE XVI

Oregon Forest Highway System

For. Rd. No.	State No.	Name	Termini	Length in Miles
1	32	McMinnville-Tillamook	Hebo-East Forest Boundary	13.9
2	39	Salmon River	Oregon Coast Highway-West Polk County Line	13.7
3	9	Oregon Coast	Neskowin-Siletz River	23.0
4	181	Siletz River	Oregon Coast Highway-Forest Boundary	6.0
5	9	Oregon Coast	Yaquina Bay-Umpqua River	68.7
6	27	Alsea	Waldport-Benton County Line	28.4
7	34	Siuslaw	Oregon Coast Highway-Blachly	45.0
8	45	Umpqua	Reedsport-Scottsburg	15.6
9	9	Oregon Coast	Douglas County Line-Hauser	9.6
10	9	Oregon Coast	Port Orford-Gold Beach	31.4
11	25	Redwood	O'Brien Schoolhouse-State Line	5.4
12	25	Redwood	Summit Hayes Hill-Love Station	2.0
13	38	Oregon Caves	3 miles West of Forest Boundary to Caves	11.4
14	......	Applegate (County Rd.)	Ruch-Watkins	17.0
15	1	Pacific	Canyonville—2¾ miles South of Forest Boundary	11.0
16	230	Tiller to Trail	Tiller to Trail	26.2
17	22	Crater Lake	Trail-Park Boundary	44.2
18	22	Crater Lake	Dalles-California Highway-Park Boundary	7.7
19	4	Dalles-California	Crescent-Old Fort Klamath	57.8
20	424	Sand Creek	Dalles-California Highway-Park Boundary	4.3
21	18	Willamette	Lowell to Dalles-California Highway	73.3
22	15	McKenzie	Blue River to Sisters	51.1
23	16	Santiam	1 mile East of Foster to Sisters	69.9
24	......	North Santiam (County Road)	Niagara-Santiam Highway	43.2
25	26	Mount Hood	West Forest Boundary to Wapinitia Junction	15.4
26	44	Wapinitia	Mt. Hood Highway to 1 mile North of Wapinitia	32.9
27	41	Ochoco	West Forest Boundary to North Forest Boundary	20.0
28	2	Columbia River	West Forest Boundary to East Forest Boundary	27.9
29	19	Fremont	West to East Forest Boundary	16.2
30	20	Klamath Falls-Lakeview	West to East Forest Boundary	29.8

TABLE XVI—Continued

For. Rd. No.	State No.	Name	Termini	Length in Miles
31	19	Fremont	4 miles South of Valley Falls to 6 miles North of Lakeview	13.0
32	321	Heppner-Spray	Mouth of Chapin Creek to John Day Highway	26.3
33	28	Pendleton-John Day	2½ miles Northwest of Albee to Range	30.7
34	28	Pendleton-John Day	Long Creek-South Forest Boundary	20.4
35	48	John Day-Burns	John Day-Burns	*69.5
36	5	John Day	Prairie City-Unity	42.6
37	330	Weston-Elgin	McDougall's Camp to Summerville-Elgin Road	23.2
38	11	Flora-Enterprise	State Line to South Forest Boundary	30.3
39	350	Little Sheep Creek	West Forest Boundary to Imnaha	8.8
40	......	Baker-Cornucopia (County Road)	Carson to Cornucopia	5.0
41	......	Loop-Dalles (County Rd.)	Mt. Hood Highway to East Forest Boundary	15.0
42	53	Warm Springs	Wapinitia Highway Junction-Forest Boundary	7.0
43	†	Diamond Lake	Union Creek to Dalles-California Highway via Diamond Lake	38.9
44	‡	Williams Creek (County Road)	Applegate Highway to Oregon Caves Highway	20.0
45	9	Oregon Coast	North Forest Boundary to South Forest Boundary between Hebo and Beaver	1.1
46	§	Cascade Lakes	North Boundary of Crater Lake Park to Bend	101.0
47	......	North Umpqua (County Road)	Rock Creek to Cascade Lakes Highway	60.0
48	421	Klamath Lake-West Side	Forest Boundary East of Gardner Peak to Forest Boundary South of Odessa Ranger Station	20.0
49	26	Mount Hood	Wapinitia Junction-North Forest Boundary	21.5
50	......	Timberline	Mt. Hood Highway Junction to Timberline Lodge	6.0

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* Includes 2.5 miles on the Central Oregon Highway.
† State Secondary Highways 233 and 425.
‡ Includes State Secondary Highways 232 and 372.
§ Includes 7.2 miles on State Secondary Highway 261.

Public Works Administration (PWA) Projects

As no PWA funds were made available by the Federal Government during the years 1939 and 1940, no PWA projects were undertaken by the Highway Commission during those years. Work was in progress during the early part of that period, however, on PWA projects contracted in 1938, and during the biennial period covered by this report, collections of PWA funds in the amount of $520,494 were made.

A complete listing of the PWA projects contracted and carried to completion under the supervision of the Highway

TABLE XVII

Federal Aid Funds and Forest Road Funds Apportioned to Oregon June 30, 1941

The following table shows the total federal aid funds and forest road funds apportioned to Oregon under the various federal aid acts:

Period for Which Funds Are Apportioned	Federal Aid Funds	Forest Road Funds	Total
Total of prior apportionments*	$37,809,545.80	$17,853,088.89	$55,662,634.69
Act of April 8, 1935:			
July 1, 1935 to June 30, 1936			
Works program highway funds	3,038,642.00		3,038,642.00
Works program grade crossing funds	2,334,204.00		2,334,204.00
Act of June 16, 1936:			
July 1, 1937, to June 30, 1938			
Federal aid funds	2,092,368.00	1,254,717.00	3,347,085.00
Secondary or feeder road funds	418,474.00		418,474.00
Grade crossing elimination funds	588,377.00		588,377.00
Federal lands funds	168,367.00		168,367.00
July 1, 1938, to June 30, 1939			
Federal aid funds	2,048,413.00	1,254,044.00	3,302,457.00
Secondary or feeder road funds	409,683.00		409,683.00
Grade crossing elimination funds	565,844.00		565,844.00
Federal lands funds	167,394.00		167,394.00
Act of June 8, 1938:			
July 1, 1939, to June 30, 1940			
Federal aid funds	1,638,823.00	898,443.00	2,537,266.00
Secondary or feeder road funds	245,823.00		245,823.00
Grade crossing elimination funds	224,953.00		224,953.00
Federal lands funds	60,542.00		60,542.00
July 1, 1940, to June 30, 1941			
Federal aid funds	1,884,937.00	1,171,755.00	3,056,692.00
Secondary or feeder road funds	245,861.00		245,861.00
Grade crossing elimination funds	335,220.00		335,220.00
Federal lands funds	129,201.00		129,201.00
Act of September 5, 1940: (Approximate only)			
July 1, 1941, to June 30, 1942			
Federal aid funds	1,639,000.00	630,000.00	2,269,000.00
Secondary or feeder road funds	287,000.00		287,000.00
Grade crossing elimination funds	223,000.00		223,000.00
Federal lands funds	100,000.00		100,000.00
July 1, 1942, to June 30, 1943			
Federal aid funds	1,639,000.00	630,000.00	2,269,000.00
Secondary or feeder road funds	287,000.00		287,000.00
Grade crossing elimination funds	223,000.00		223,000.00
Federal lands funds	100,000.00		100,000.00
Totals	$58,904,671.80	$23,692,047.89	$82,596,719.69

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* For the detail of yearly allotments prior to 1936, see former reports of the State Highway Commission.

Commission is given on pages 75 and 76 of the Biennial Report for the years 1937 and 1938.

Work Projects Administration (WPA) Projects

In 1933 the Federal Congress established an agency to provide employment for persons requiring public relief. This agency was known as the Civil Works Administration (CWA), and was followed by the establishment of the Federal Emergency Relief Administration (FERA), and in 1935 by Act of Congress the Works Progress Administration was created, subsequently being changed to Work Projects Administration (WPA).

Federal funds were provided for these agencies for many types of work projects, among them being projects for the construction of highways, both county and state, and for landscaping of highway rights of way and construction of buildings for maintenance and administrative purposes.

These acts by the Congress provided that the federal funds must be used for the creation of work relief projects and that local public agencies must sponsor the projects and make funds available, or in lieu thereof, equipment, materials, engineering or such other expenditures as the federal agency might consider a contribution to the cost of the work. These local cooperative contributions were under certain conditions as low as 10 per cent, and in others as high as 75 per cent of the cost of the project. The primary purpose of the federal funds was to provide work for the unemployed, particularly those persons requiring relief, and the amount of the federal funds available for non-labor items has been limited to approximately 10 per cent of the federal fund allocated to a project.

The State Highway Commission has, since the beginning of the Federal Relief Programs, cooperated with the Federal Government and has sponsored projects and provided co-operative funds whenever it was clear that the sponsored project was of mutual benefit, and in no way detrimental to the best interests of the State.

Because of the federal regulations, certain types of project can be operated economically, including grading projects on new highways, where no traffic problem is involved, landscaping projects, construction of maintenance buildings, storage yards, and culvert installation. Several projects of this type have been undertaken and completed.

As the pressure of relief employment has lessened and other local agencies have provided sponsorship of many projects, the State Highway Commission has reduced the number of WPA projects undertaken, and during the past year the work has been centered on the Wolf Creek and Wilson River Highways, where large construction camps have been established, and relief labor obtained from Portland, where the relief requirements were the greatest.

In addition to the Wolf Creek and Wilson River Highways, several other projects which were initiated during the previous biennium were completed; among them, the State Highway Division Office and State Police Headquarters building for the Portland area, situated on S. E. McLoughlin Boulevard at Portland. A maintenance headquarters building and yard was constructed in Forest Grove. An area adjacent to the grade separation in East Pendleton was landscaped, and work was continued on the Canyon Road in West Portland, constructing rock guard walls and landscaping the roadway.

The following tabulation of projects and expenditures thereon, for the two-year period just passed, indicates the work accomplished.

The following expenditures have been made during the period July 1, 1938, to June 30, 1940:

Project	*By State*	*By WPA*	*Total*
Nehalem River-Davies, grading and surfacing	$ *375,853	$1,302,078	$1,677,931
Barnes Road-Multnomah County line	1,634	26,359	27,993
Jordan Creek-Glenwood, grading	*334,180	1,253,134	1,587,314
Barbur Boulevard roadside improvement	1,408	4,340	5,748
Forest Grove maintenance building	4,406	3,187	7,593
Portland division office building	15,191	36,843	52,034
Wrecking buildings in Albany	267	2,046	2,313
Columbia County line-Portland	4,187	32,855	37,042
East Pendleton Roadside improvement	1,390	3,221	4,611
Bonneville-Eagle Creek retaining walls	613	3,357	3,970
Canyon Road retaining walls	10,145	43,674	53,819
Eugene artificial lakes	2,817	9,033	11,850
Riverside Drive, Portland, culvert	603	2,317	2,920
Totals	$ *752,694	$2,722,444	$3,475,138

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* Includes $1,800 contributed by Clatsop County on the Wolf Creek Highway, and $53,632 contributed by Tillamook County on the Wilson River Highway.

RECONSTRUCTED PACIFIC HIGHWAY SOUTH OF ROSEBURG

RECONSTRUCTED PACIFIC HIGHWAY NEAR THE SUMMIT OF THE SISKIYOU MOUNTAIN GRADE

REPORT OF CONSTRUCTION DEPARTMENT

H. G. SMITH, *Construction Engineer*

Progress

The construction biennium has been marked by the opening to traffic of several important sections of the highway system on which work has been under way by stage construction for many years. These include the Willamette Highway, the Santiam Highway, the first unit of the Wolf Creek Highway and the Ashland-State Line Section of the Pacific Highway over the Siskiyou Mountains.

In the eastern portion of the state, a number of important highways have been brought to the dustless stage of construction throughout their lengths with the result that the portions of the state which are served by them can now be crossed without the discomforts of dust and mud. Among the highways referred to are the Central Oregon and Fremont Highways.

New projects of magnitude upon which work was started during the biennium include the reconstruction of the Oregon-Washington Highway, the first unit of which between Pendleton and Adams has been completed; the Boardman-Stanfield section of the Old Oregon Trail; the second unit of the Wolf Creek Highway, from Sunset Camp to Banks; and the Sexton Mountain summit section of the Pacific Highway.

Construction Practices

Methods and standards used during the biennium have been those used and discussed in previous reports, with an endeavor to continually improve them according to modern research. The standards and classifications of the Oregon State Highway Department conform to those adopted by the Special Committee on Administrative Design Policies of the American Association of State Highway Officials. R. H. Baldock, State Highway Engineer, has been a member of this committee, and H. W. Libby, Chief Locating Engineer, is an appointed member of the Committee on Design.

All major location and relocation surveys are made by locating engineers who are specialized along these lines. There are five in the department, and they work under the direct supervision of the Division Engineer of the division in which they are working in addition to the detailed direction of Mr. Libby. A few of the surveys made during this biennium are: Madras-Prineville (Warm Springs Highway), Glendale Jct.-Grants Pass, Eugene-Walker, Foster-Bryant Hill, Wrights Point-The Narrows (Frenchglen Secondary Highway), Molloy Ranch-Hooker Creek (I. O. N. Highway), Brogan-Jamieson, Adams-Pendleton, Cricket Flat-Wallowa County Line (Wallowa Lake Highway), and Salem-Roberts (Marion County Road).

The major highways of the state have been calibrated under the supervision of Chief Locating Engineer H. W. Libby so that "no passing" zones could be marked by the traffic department. Reports on the economies of all suggested routes are reported on by Mr. Libby's department.

Notable improvement has been continued in the study of soils and surface conditions as applied to highway construction under the direction of Paul Van Scoy, Assistant Construction Engineer. These studies were augmented by a soil school held for two weeks in Portland by the Public Roads Administration, which was attended by several of the Department's engineers.

The use of a light well drilling outfit has proven very successful in determining subsurface conditions, and very elaborate preconstruction studies were made on the Sunset Camp-Manning section of the Wolf Creek Highway and on Sexton Mountain. The most detailed system of underdrains ever installed on any Oregon highway was laid out from these tests with good prospect of eliminating the slides hitherto so prevalent on such heavy construction.

All construction projects financed in whole or in part with federal funds are subject to the labor requirements of the Federal Government, which provides for the classification of labor into various grades with commensurate pay for each grade and with very definite regulations concerning the rules and conditions of work. Ray Webber, as Labor Regulations Engineer, is the assistant to the Construction Engineer in the supervision of these labor provisions.

In order to have accurate data for the preparation of bids and for the settlement of disputes with contractors, the construction department keeps accurate costs on all construction projects. Through the courtesy of the contractors who offered their books for analyses, this information is obtained at a minimum cost and without assigning a timekeeper to each individual job. The cost analysts under the direction of E. H. Clymer make periodic inspections to acquaint themselves with field personnel and equipment and then secure the actual cost data from the contractors' books. Under our agreement with the contractors this information is not available for general use but is for use only by the Highway Department.

Roadside Improvement Work

The program of roadside improvement started in 1934 under a ruling of the Bureau of Public Roads, which designated that one per cent of the total funds expended by the state and federal government on highway construction projects should be allocated to the improvement of the roadside, has been continued during the past biennium. These projects are carried out in every section of the state and are steadily growing in number. The projects are most diverse in design and conform in each case to the climatic conditions encountered in their respectively selected locations. All roadside improvement projects are contracted in the same manner as regular highway construction projects and are under the direction of George H. Otten, Landscape Engineer.

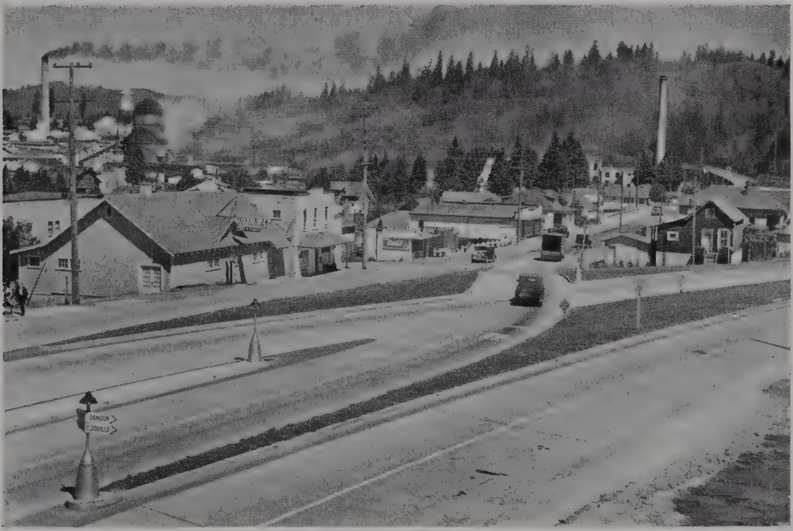
Because of variations in rainfall and temperature conditions as well as variations in soils throughout the state, close cooperation between the landscape department and the Federal Bureau of Plant Industry is maintained. Owing to the rapid development in recent years of new grasses and forage plants, this cooperation is distinctly advantageous to the Highway Department. The Stanfield-Pendleton roadside project is representative of this joint collaboration, and the results obtained in the control of noxious weeds and water and wind erosion are more than satisfactory. In this twenty-mile roadside project, crested wheat grass (Siberian bunch grass) (agropyron cristatum) was planted, and in the past two years has effectively consolidated into a dense and matted turf. The grass stands mowing effectively, and it is more desirable and drought resistant than the native bunch grass which originally covered the land. Russian thistle is no longer a roadside problem, and the grass stubble impedes drifting snow to a considerable extent.

In a similar roadside development undertaken at Summer Lake, a brome grass (bromus inermus) was planted where again different soil and climatic conditions were encountered.

In addition to such roadside stabilization projects east of the Cascades, work of an entirely different nature was undertaken west of the mountains. Perhaps the most ambitious roadside project so far completed is the four-mile section of the relocated Pacific Highway East through the City of Albany. Here the waters of Cox Creek were impounded in order to create a roadside lake out of a large borrow pit. The unexcavated areas adjacent to the borrow pit were grubbed and cleared in such a manner as to leave a desirable oak grove, and these areas were then seeded to grass. This will develop into a most welcome roadside picnic area, and the lake will afford opportunity for boating and swimming. The plazas surrounding the ramps of the overcrossing structures being in the very heart of the city were completely landscaped with trees, shrubs and lawns. The entire scheme was developed with due regard to sight distance, and the planting was so arranged as to aid in guiding traffic. Trim boxwood borders outline the main arteries of travel and accent the pleasing curved outline of all the approach roads. The overhead structures are simple in outline while the handrails were designed of wrought steel so that the outlook would be unimpeded. Avenues of oak connect the rural areas to the urban district on the northerly approach to Albany, while the southerly approach is lined with Norway maples which blend with native oaks, maples and pines at the southerly end of the improvement.

No report on roadside improvement would be complete without calling attention to the splendid maintenance work being performed in an effort to make Oregon's native beauty a never-ending source of pleasure to our tourists. Particular reference is made to this maintenance work on such famous tourist highways as the Columbia River Highway, the Lower Columbia River Highway, the Mt. Hood Loop Highway, the McKenzie Highway, the Oregon Coast Highway and others of which these are typical examples of this contribution to roadside improvement by the regular maintenance forces of the department.

A few roadside improvement projects have been set up as special projects under W. P. A. Outstanding examples of this type of roadside improvement work are projects on the Canyon Road, between Portland and Sylvan, and on the Wolf Creek Highway.



INTERSECTION OF OREGON COAST HIGHWAY AND COOS RIVER HIGHWAY IN SOUTH MARSHFIELD

REPORT OF MAINTENANCE DEPARTMENT

J. N. BISHOP, *Maintenance Engineer*

General Summary

State highway maintenance has continued through the biennium with little departure from previous practice. There has been some increase in mileage and this has entailed a corresponding increase in equipment and personnel requirements. The mileage maintained has increased from 6,783 miles to 7,025 miles, section crews have increased from 122 to 126, paving plants from 7 to 9, and snogo's from 15 to 18. The most notable tendency has been the growing importance of the traffic service and highway operation functions. These activities include signs, traffic line, illumination, snow removal, sanding of icy pavement, landscape maintenance, and mowing and trimming for highway beautification. The previous high standard of maintenance has been continued on the primary highways, accompanied by a gradual raising of standards of secondary highway maintenance. Many secondary highways had never been regularly bladed or mowed or plowed of snow until the last few years under state maintenance.

Maintenance is defined as that work necessary to preserve the highways, their surfaces, structures, and appurtenances in constant good condition, equal or comparable to the condition at the time of original construction. For convenience in administration, the maintenance work is divided into two classes, "special" and "general" maintenance. "Special" maintenance work consists of those projects involving large scale maintenance operations, usually contracted, such as replacement resurfacing, stockpiling of maintenance material for future use, etc. Much of this work is classed as construction in other states so that comparison of maintenance costs are not always equitable. General maintenance work consists of routine maintenance repairs and replacements and, of late, those activities involved in traffic service and highway operation, which are performed by permanent section crews, bridge crews, and sign crews, by special extra gang crews operating independent of the section crews, and by state force paving and oiling crews.

Field Organization and Methods

The State is divided into 15 districts, and all of the general maintenance work performed in a district by section crews, extra gang crews, bridge crews, paving crews and oiling crews, is under the supervision of the District Maintenance Superintendent for the district. The District Maintenance Superintendent works under the supervision of one of five Division Engineers. The Division Engineers report, in turn, to the Maintenance Engineer.

There are 126 section crews stationed throughout the state, operating from permanent strategically located headquarters and composed of a foreman, a helper and such equipment and operators and laborers as are necessary, varying in size but averaging 7 men each. These crews are constantly on the alert to repair surface and shoulder breaks, to keep drainage open, and to perform many miscellaneous tasks of repair and replacement. In stormy weather they patrol the highways to locate washouts, slides, or fallen trees, and in the winter they remove snow and sand icy pavement, giving much time and attention to traffic service and safety.

The traveling public's demand for snow removal has increased so that additional mileage and additional mountain routes and passes are kept open each winter. Public enthusiasm for snow sports has also grown adding its demand for increased snow removal. The old snowplow blades lacked the exact curvature required to throw the snow clear of the roadway and snowplow truck, so that often the snow from the plows partially blinded the plow operators. The new plows correct this fault and result in not only less hazardous operation but more economical and effective operation.

Bridge crews, sign crews, paving and oiling crews are organized under foremen independent of the section crews and perform repairs and replacements of their particular type of work. Extra gang shovel crews remove slides and replace settled embankments and perform various betterment operations. Investigations by Paul Van Scoy, Assistant Construction Engineer, are made to determine the drainage facilities necessary to drain those slides most difficult to stabilize, and special

ROTARY IN ACTION ON WAPINITIA HIGHWAY
(MT. HOOD IN BACKGROUND)

THE WAPINITIA HIGHWAY IN MIDWINTER

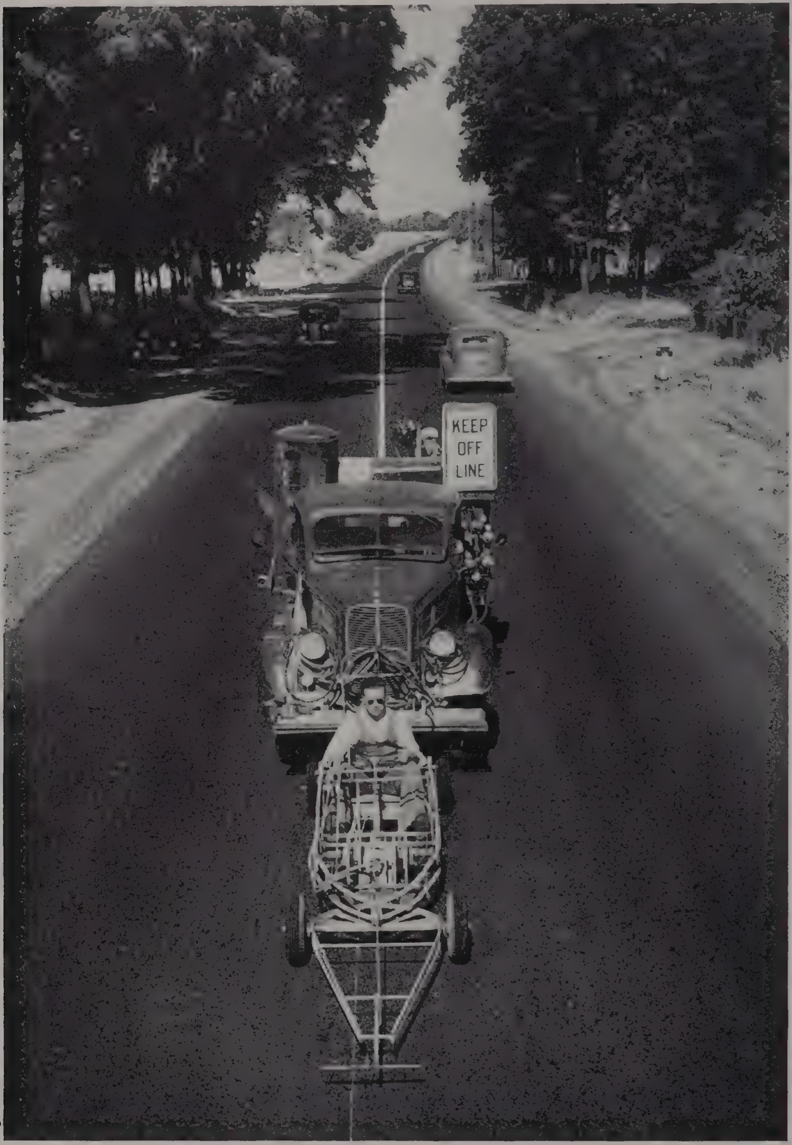
tunnel crews are organized for constructing tunnels when required.

The section crews perform regular cleanup, mowing of grass, eradication of noxious weeds, and trimming of brush, while special landscape crews, composed of specially trained men and equipped with special equipment, perform the pruning, watering, cultivation, fertilizing, and maintenance of landscaped improvements throughout the state. These special crews also perform much trimming and pruning of natural growth. Crews operating nine portable paving plants in 1940 placed a total of 77,064 tons of bituminous concrete at an average cost of $5.58 per ton. In 1939 the output of 8 plants was 62,644 tons at an average cost of $5.78 per ton. Practically every year has shown an increase in tonnage laid and a decrease in cost per ton since 1923 when one plant produced 2,163 tons at an average cost of $15.72 per ton. This decrease in cost is due, not alone to lower material costs and quantity production methods, but largely to improved plant design and mixing methods, together with efficient performance of street operations. This type of patching has proven most effective on all types of surfaces, asphaltic concrete pavement, cement concrete pavement, bituminous macadam, and oil mat surfaces and contributes much to the nationally known smooth riding character of Oregon highways. The mileage of these surfaces has increased from 685 miles in 1923 to 5,160 miles in 1940, however the increased tonnage is not alone due to increased mileage but to the increasing age of the early pavements and to the heavy increase in traffic, the most damaging of which is the heavy freight and log trucking.

Five state force oil crews performed 615 miles of re-oiling in 1940 at an average cost of $776 per mile for the single application re-oil (0-30 type) and $1,155 per mile for the double application re-oil (0-9 type).

Bridge Maintenance

The maintenance of bridges and buildings is under the supervision of an Assistant Maintenance Engineer who, through the Division Engineers, supervises the bridge repair crews and ferry and drawbridge operators.



CENTER LINE STRIPING EQUIPMENT IN OPERATION

The Maintenance Department supervises the operation of two toll-free ferries; one at Wilsonville across the Willamette River on the Beaverton-Aurora Secondary Highway; and the Enegren Ferry crossing Coos River on the Coos River Secondary Highway; also 17 draw or lift bridges, all in compliance with war department regulations.

There are 16 regular bridge crews, operating on a permanent basis, but moving from one headquarters to another as their program of repairs requires. Five special summer crews were organized in 1940 to perform painting and building maintenance work which can best be performed during dry weather.

The work performed consists of the routine repairs and replacements found necessary by regular bridge inspections and timber boring tests. Replacement of decayed timber in both the substructure and superstructure is accomplished with a minimum of interference with traffic. The painting of the coast bridges presented special problems due to the dampness of the atmosphere. A special welding crew in 1939 revised the portal bracing on more than 50 steel through trusses to eliminate restrictions on vertical clearance. There are many state owned buildings, maintenance headquarters, district and division offices, and equipment shops upon which maintenance and repairs must be made and the work is performed by special building repair crews made up of specially selected members of the regular bridge crews. The installation of truck scales and the construction of scale houses is also performed by these special building crews.

Sign Installation and Maintenance

The work of installing and maintaining signs and signals is under the supervision of an Assistant Maintenance Engineer who directs the work of seven sign crews working on State highways, two sign crews placing and maintaining directional signs on county roads, five center line striping crews, one stencil crew and one electrical crew.

During the past year, 5,500 miles of center line was striped at a cost of approximately $18.00 per mile. This year a program of painting "no-passing" lines in the driver's lane where the vertical sight distance is limited, was inaugurated. On six main highways a total of 220 miles of this line was painted. Special machines were designed and built in the Salem shops to perform this work and a single, double or triple line can be painted in one operation. The major portion of the highways are striped with a lacquer manufactured in accordance with the State Highway Department's formula, though 50 miles of special luminous traffic line was laid the past year with lacquer purchased on the manufacturer's formula. This lacquer has a heavier body and is applied approximately 50 per cent heavier than regular traffic line lacquer in order that it will hold the glass spheres or beads which make it luminous at night. This luminous traffic line is painted principally on concrete highways which carry heavy traffic as it has a much greater life than ordinary lacquer, though its general use is retarded by its much greater cost. Sections which have been laid to date cost approximately $65.00 per mile.

The seven sign crews, each assigned to a definite territory, install and maintain direction and caution signs. A major portion of the expenditure for this work consists of the installation of reflectorized caution signs.

Two of the sign crews are engaged continuously in installing and maintaining directional signs on county roads. The electrical crew installs and maintains traffic signals at hazardous intersections and maintains the lighting facilities for the illumination of tunnels, bridges, ferries, signs and traffic islands.

Radio Network

In order to secure close cooperation between the widely scattered forces of the department, particularly during times of emergency, the Maintenance Department operates a radio network. The radio equipment is operated by regular employes, assistants, or office men, and in the case of the snogo's, by the regular truck operators who are registered radio operators. The network consists of 25 stationary stations and five on automotive equipment. Of the fixed stations, three have a power of 1,000 watts (Salem, La Grande, and Klamath Falls), three are 500 watt stations (Milwaukie, Bend, and Medford), one is a 250 watt station (Roseburg), seven are 100 watt stations (Coquille, Burns, Astoria, The Dalles, Pendleton, Eugene, and John Day), three are 50 watt stations (Government Camp, Santiam Junction, and Odell Lake), and three are 10 watt stations (Baker, Grants Pass, and Meacham). The mobile stations are all 10 watt stations. The stations at Portland, Salem, Klamath Falls, and La Grande are also radio telegraph stations.

Cost Statements

Itemized statements showing the "per mile" costs of maintenance for both the primary and the secondary highway systems, during each of the calendar years, 1938 and 1939, and showing also the total mileage of each system maintained, appear in accompanying tables.

All maintenance operations are carried on under the supervision of J. N. Bishop, Maintenance Engineer, who is assisted by W. W. Stiffler and W. O. Widdows, Assistant Maintenance Engineers, and Watson Townsend and I. A. De France, Maintenance Office Engineers.

RELOCATION OF PACIFIC HIGHWAY EAST AND GRADE SEPARATION PROJECT IN ALBANY

TABLE XVIII, MAINTENANCE TABLE "A"

Costs of Maintaining Primary State Highways

Calendar Year 1938

Item	General Maintenance Charges	Special Maintenance Charges	Total Maintenance Charges	Miles Maintained	Cost Per Mile
Surface					
Concrete pavement	$ 34,351.69	$	$ 34,351.69	309	$111.17
Asphalt pavement	125,429.49	19,297.29	144,726.78	563	257.06
Bituminous macadam					
(a) Patch and retreat	228,624.83		228,624.83	1,080	211.69
(b) Material stockpiled		115,518.35	115,518.35		
Oiled macadam					
(a) Patch and retreat	510,797.03		510,797.03	1,890	270.26
(b) Material stockpiled		161,374.44	161,374.44		
Untreated macadam and graded					
(a) Blade and gravel	153,220.42	20,163.63	173,384.05	778	222.86
Shoulders					
Patching and retreating	67,380.49	4,121.38	71,501.87		
Blading and sodding	59,492.05		59,492.05		
Sidewalks and footpaths	500.22		500.22		
Drainage					
Ditches	157,962.30		157,962.30		
Drains and drainage tunnels	6,640.51		6,640.51		
Culvert cleaning	15,568.39		15,568.39		
Structures					
Bridges 20′ and under	20,836.02		20,836.02		
Bridges over 20′ in length	168,084.04		168,084.04		
Guard fences and sight posts	34,839.59		34,839.59		
Pipe culverts	4,704.09		4,704.09		
Tunnels	3,595.80		3,595.80		
Roadside					
Cutting and burning weeds and brush	102,686.23		102,686.23		
Removal of debris	24,318.40		24,318.40		
Highway beautification	4,940.78		4,940.78		
Slide removal and cut sloping	101,453.13		101,453.13		
Fills: Replace and widen	69,794.23		69,794.23		
Right of way fence	336.46		336.46		
Right of way markers	40.64		40.64		
Seeding and planting slopes	38.25		38.25		
Road approaches	3,541.86		3,541.86		
Traffic Service					
Traffic signals	2,307.40		2,307.40		
Signs and highway markers	71,176.02		71,176.02		
Traffic lines	85,773.18		85,773.18		
Snow removal	195,631.59	3,663.02	199,294.61		
Mile posts	635.70		635.70		
Sanding slippery pavements	34,615.70		34,615.70		
Flagging, patrolling, towing, etc.	5,292.69		5,292.69		
Highway illumination	5,045.94		5,045.94		
Operation of road magnet	4,743.35		4,743.35		
Supervision	83,304.94		83,304.94	4,620	18.03
Total	$2,387,703.45	$ 324,138.11	$2,711,841.56	4,620	$586.98

TABLE XIX, MAINTENANCE TABLE "B"

Costs of Maintaining Primary State Highways

Calendar Year 1939

Item	General Maintenance Charges	Special Maintenance Charges	Total Maintenance Charges	Miles Maintained	Cost Per Mile
Surface					
Concrete pavement	$ 38,400.27	$	$ 38,400.27	307	$125.00
Asphalt pavement	127,290.54		127,290.54	561	227.00
Bituminous macadam					
(a) Patch and retreat	257,537.96		257,537.96	1,103	233.00
(b) Material stockpiled		82,235.58	82,235.58		
Oiled macadam					
(a) Patch and retreat	538,002.83		538,002.83	2,084	258.00
(b) Material stockpiled		156,527.65	156,527.65		
(c) New oiling rock		1,839.52	1,839.52		
Untreated macadam and graded					
(a) Blade and gravel	119,522.70		119,522.70	625	191.00
Shoulders					
Patching and retreating	65,932.75		65,932.75		
Blading and sodding	54,774.49		54,774.49		
Sidewalks and footpaths	943.19		943.19		
Drainage					
Ditches	170,572.17		170,572.17		
Drains and drainage tunnels	6,510.00		6,510.00		
Culvert cleaning	9,698.81		9,698.81		
Structures					
Bridges 20′ and under	14,421.77		14,421.77		
Bridges over 20′ in length	197,266.97	30,201.84	227,468.81		
Guard fences and sight posts	28,569.18		28,569.18		
Pipe culverts	4,814.15		4,814.15		
Tunnels	3,239.16		3,239.16		
Roadside					
Cutting and burning weeds and brush	141,537.93		141,537.93		
Removal of debris	30,961.57		30,961.57		
Highway beautification	8,605.05		8,605.05		
Slide removal and cut sloping	64,612.42		64,612.42		
Fills: Replace and widen	37,327.51		37,327.51		
Right of way fence	537.22		537.22		
Right of way markers	27.01		27.01		
Seeding and planting slopes	472.98		472.98		
Road approaches	5,517.14		5,517.14		
Traffic Service					
Traffic signals	3,141.99		3,141.99		
Signs and highway markers	60,261.95		60,261.95		
Traffic lines	68,432.24		68,432.24		
Snow removal	194,360.07		194,360.07		
Mile posts	721.61		721.61		
Sanding slippery pavements	30,485.94		30,485.94		
Flagging, patrolling, towing, etc.	1,570.86		1,570.86		
Highway illumination	6,321.94		6,321.94		
Operation of road magnet	4,588.61		4,588.61		
Supervision	79,485.25		79,485.25	4,680	17.00
Total	$2,376,466.23	$ 270,804.59	$2,647,270.82	4,680	$566.00

TABLE XX, MAINTENANCE TABLE "C"

Costs of Maintaining Secondary State Highways

Calendar Year 1938

Item	General Maintenance Charges	Special Maintenance Charges	Total Maintenance Charges	Miles Maintained	Cost Per Mile
Surface					
Concrete pavement	$ 6,138.39	$	$ 6,138.39	51	$120.36
Asphalt pavement	24,204.00		24,204.00	127	190.58
Bituminous macadam					
(a) Patch and retreat	2,571.59		2,571.59	38	67.67
Oiled Macadam					
(a) Patch and retreat	118,926.12		118,926.12	491	242.41
(b) Material stockpiled		23,766.38	23,766.38		
Untreated macadam and graded					
(a) Blade and gravel	172,925.79		172,925.79	1,501	115.21
(b) Material stockpiled		18,793.50	18,793.50		
Shoulders					
Patching and retreating	7,248.45		7,248.45		
Blading and sodding	6,517.41		6,517.41		
Drainage					
Ditches	36,728.43		36,728.43		
Drains and drainage tunnels	1,681.95		1,681.95		
Culvert cleaning	5,511.24		5,511.24		
Structures					
Bridges 20′ and under	13,983.91		13,983.91		
Bridges over 20′ in length	63,947.66		63,947.66		
Guard fences and sight posts	3,358.97		3,358.97		
Pipe culverts	4,858.32		4,858.32		
Tunnels	962.97		962.97		
Roadside					
Cutting and burning weeds and brush	26,147.29		26,147.29		
Removal of debris	7,739.46		7,739.46		
Highway beautification	95.35		95.35		
Slide removal and cut sloping	25,725.11		25,725.11		
Fills: Replace and widen	15,303.69		15,303.69		
Right of way fence	17.99		17.99		
Right of way markers	15.45		15.45		
Seeding and planting slopes	15.88		15.88		
Road approaches	1,259.65		1,259.65		
Traffic Service					
Traffic signals	88.58		88.58		
Signs and highway markers	13,993.44		13,993.44		
Traffic lines	15,500.54		15,500.54		
Snow removal	23,325.95		23,325.95		
Sanding slippery pavements	1,958.17		1,958.17		
Flagging, patrolling, towing, etc.	3,466.42		3,466.42		
Highway illumination	409.72		409.72		
Operation of road magnet	2,228.68		2,228.68		
Supervision	21,938.11		21,938.11	2,208	9.94
Total	$ 628,794.68	$ 42,559.88	$ 671,354.56	2,208	$304.05

TABLE XXI, MAINTENANCE TABLE "D"

Costs of Maintaining Secondary State Highways

Calendar Year 1939

Item	General Maintenance Charges	Special Maintenance Charges	Total Maintenance Charges	Miles Maintained	Cost Per Mile
Surface					
Concrete pavement	$ 6,132.45	$	$ 6,132.45	51	$120.00
Asphalt pavement	23,385.43	....	23,385.43	128	183.00
Bituminous macadam					
(a) Patch and retreat	10,197.62	....	10,197.62	63	162.00
(b) Material stockpile	....	11,125.38	11,125.38	....	....
Oiled Macadam					
(a) Patch and retreat	119,648.60	....	119,648.60	613	195.00
(b) Material stockpiled	....	34,649.35	34,649.35	....	....
(c) New oiling rock	....	10,182.98	10,182.98	....	....
Untreated Macadam and graded					
(a) Blade and gravel	162,091.54	....	162,091.54	1,371	118.00
Shoulders					
Patching and retreating	7,177.70	....	7,177.70	....	....
Blading and sodding	7,568.50	....	7,568.50	....	....
Sidewalks and footpaths	142.11	....	142.11	....	....
Drainage					
Ditches	39,107.04	....	39,107.04	....	....
Drains and drainage tunnels	775.45	....	775.45	....	....
Culvert cleaning	4,082.87	....	4,082.87	....	....
Structures					
Bridges 20′ and under	9,178.19	....	9,178.19	....	....
Bridges over 20′ in length	62,709.97	....	62,709.97	....	....
Guard fences and sight posts	3,069.26	....	3,069.26	....	....
Pipe culverts	4,865.27	....	4,865.27	....	....
Roadside					
Cutting and burning weeds and brush	35,559.33	....	35,559.33	....	....
Removal of debris	6,717.80	....	6,717.80	....	....
Highway beautification	776.25	....	776.25	....	....
Slide removal and cut sloping	15,137.17	....	15,137.17	....	....
Fills: Replace and widen	8,578.51	....	8,578.51	....	....
Right of way fence	374.37	....	374.37	....	....
Right of way markers	48.87	....	48.87	....	....
Seeding and planting slopes	2,555.81	....	2,555.81	....	....
Traffic Service					
Traffic signals	55.48	....	55.48	....	....
Signs and highway markers	15,259.98	....	15,259.98	....	....
Traffic lines	9,348.69	....	9,348.69	....	....
Snow removal	24,917.47	....	24,917.47	....	....
Mile posts	4.36	....	4.36	....	....
Sanding slippery pavements	2,324.45	....	2,324.45	....	....
Flagging, patrolling, towing, etc.	254.10	....	254.10	....	....
Highway illumination	439.78	....	439.78	....	....
Operation of road magnet	1,822.60	....	1,822.60	....	....
Supervision	20,219.49	....	20,219.49	2,226	9.00
Total	$ 604,526.51	$ 55,957.71	$ 660,484.22	2,226	$297.00

HIGHWAY EQUIPMENT STORAGE BUILDING AND SECTIONMAN'S RESIDENCE AT SANTIAM JUNCTION MAINTENANCE STATION

MAINTENANCE SECTIONMEN'S QUARTERS ON CENTRAL OREGON HIGHWAY AT BROTHERS

TABLE XXII

Unit Costs of Re-oiling

Year and Specification	Miles Oiled	Cost Per Mile		Cost Per Square Yard	
		Rock Cost Included	Rock Cost Excluded	Rock Cost Included	Rock Cost Excluded
1938					
0-30	356.12	$ 841.50	$ 582.34	$ .077	$ .053
0-31	122.05	486.64	363.34	.044	.033
0-11	1.90	2,712.71	1,843.54	.240	.163
0-9	19.16	1,381.66	839.84	.113	.069
Total	499.23				
1939					
0-30	450.54	$ 774.94	$ 532.36	$ .070	$ .048
0-31	67.45	403.24	326.75	.035	.029
0-9	11.66	1,236.96	845.69	.123	.063
Total	529.65				
1940					
0-30	535.44	$ 776.34	$ 534.99	$ .069	$ .048
0-31	42.27	515.06	375.48	.043	.032
0-9	30.21	1,155.75	737.79	.097	.062
0-8	2.17	1,702.73	1,397.21	.145	.119
SC2	4.53	525.97	364.11	.054	.037
Total	614.62				

TABLE XXIII

Expenditures for Minor Betterments on Primary Highways

Calendar Years 1938 and 1939

Item	*Calendar Year 1938*	*Calendar Year 1939*
Surface:		
Concrete pavement	$	$ 3,618.06
Asphalt pavement	5,686.56	3,581.33
Bituminous macadam	15.85	940.35
Oiled macadam	7,783.38	9,517.38
Untreated macadam	4,139.66	641.99
Shoulders:		
Patching and retreating	5,324.20	31,761.18
Sidewalks and footpaths	1,089.77	2,395.71
Drainage:		
Ditches	2,559.51	624.87
Drains and drainage tunnels	19,612.42	11,146.80
Culvert cleaning	163.19	....
Structures:		
Box culverts and bridges under 20 feet	9,323.79	9,014.78
Bridges over 20 feet in length	15,414.33	27,304.77
Guard fences and sight posts	25,099.68	21,001.30
Pipe culverts	17,147.19	18,668.41
Roadside:		
Removing danger trees, etc.	....	706.54
Highway beautification	618.03	2,972.71
Slide removal and cut sloping	4,203.19	440.47
Embankment replacement and widening	10,819.89	10,157.94
Right of way fence	599.03	143.27
Right of way markers	....	801.38
Seeding and planting for slope protection	1,088.27	1,223.25
Road approaches	2,300.02	9,814.52
Traffic Service:		
Traffic signals	8,346.90	15,435.95
Signs and highway markers	....	664.99
Traffic lines	531.43	1,085.71
Snow fence	7,490.83	3,174.54
Highway illumination	1,846.20	395.19
General Supervision	5,466.06	6,479.06
Totals	$ 156,669.38	$ 193,712.45

TABLE XXIV

Expenditures for Minor Betterments on Secondary Highways

Calendar Years 1938 and 1939

Item	*Calendar Year 1938*	*Calendar Year 1939*
Surface:		
Concrete pavement	$	$ 9,776.76
Asphalt pavement	18,075.47	....
Bituminous macadam	....	....
Oiled macadam	26,841.45	41,679.61
Untreated macadam	12,128.00	5,603.98
Shoulders:		
Patching and retreating	3,596.29	779.85
Sidewalks and footpaths	26.78	113.77
Drainage:		
Ditches	187.77	47.56
Drains and drainage tunnels	132.40	78.06
Structures:		
Box culverts and bridges under 20 feet	4,145.72	7,381.87
Bridges over 20 feet in length	14,931.45	8,669.59
Guard fences and sight posts	2,195.69	3,137.33
Pipe culverts	11,621.92	11,170.65
Roadside:		
Removing danger trees, etc.	....	320.58
Highway beautification	....	2.10
Slide removal and cut sloping	....	309.60
Embankment replacement and widening	2,365.73	9,301.29
Right of way fence	33.00	....
Right of way markers	....	210.64
Seeding and planting for slope protection	....	....
Road approaches	794.81	1,528.34
Traffic Service:		
Traffic signals	985.47	117.10
Signs and highway markers	....	15.88
Traffic lines	....	....
Snow fence	31.54	2,000.50
Highway illumination	142.85	62.23
General Supervision	3,551.29	3,540.27
Totals	$ 101,787.63	$ 105,847.56

NEHALEM RIVER ARCH ON THE WOLF CREEK HIGHWAY IN CLATSOP COUNTY. LENGTH, 627 FEET; MAIN SPAN, 231 FEET

OVERCROSSING STRUCTURE, PACIFIC HIGHWAY EAST AND SOUTHERN PACIFIC TRACKS IN ALBANY

REPORT OF BRIDGE DEPARTMENT

G. S. PAXSON, *Bridge Engineer*

Bridge Department activities during the past biennium have consisted of the design and construction of bridges, buildings, and miscellaneous structures for the state highway system and the design of bridges and miscellaneous structures for counties.

The Bridge Department prepared and publishd on August 1, 1939, revised "Specifications and Contract Agreement for Highway Bridge Construction." The new publication embodies modern and up-to-date practices and specifications for design, construction, and materials for bridges as recommended by the Committee on Bridges and Structures of the American Association of State Highway Officials. These new specifications govern all structural contracts awarded subsequent to August 1, 1939.

During the biennium, designs were prepared for 143 bridges and culverts on the state highway system, estimated total cost—$1,845,000; 19 buildings, tunnels, and miscellaneous structures on the state highway system, estimated total cost—$493,600; and 15 bridges, culverts, and miscellaneous structures for the various counties, estimated total cost—$212,900. Forty-nine contracts were prepared for structures, the total estimated cost being $1,808,357.45.

A brief description of the major structures constructed during the biennium is as follows:

Nehalem River Arch: This structure, crossing the Nehalem River on the Wolf Creek Highway approximately 13 miles east from the junction of the Wolf Creek Highway with the Oregon Coast Highway, completes another link of the Wolf Creek Highway. The structure consists of one 231-foot reinforced concrete arch and 370 feet of reinforced concrete viaduct.

The contract for the work was awarded on January 26, 1939, to the Mountain States Construction Company of Eugene, Oregon. Work was completed on January 20, 1940. The total cost of the structure was $134,474.65.

Depoe Bay Bridge Widening: Depoe Bay is one of the most interesting and spectacular spots on the Oregon Coast Highway. The Spouting Horns and the narrow inlet to the bay attract thousands of spectators each year. The original structure over the inlet was built in 1926 and had an 18-foot roadway with no sidewalks. People would congregate on the bridge to watch fishing boats enter the inlet to the bay. This created an extreme traffic hazard, both to the spectators on the bridge and to the vehicular traffic crossing the structure. To correct this condition, the original structure was widened by the construction of new arches and a roadway alongside the existing structure to give a 48-foot roadway and two 5-foot sidewalks. A walkway under the north end of the structure makes it possible for pedestrians to cross from the business section on the east side of the highway to the State park on the west side of the highway without danger. This is only one unit of the contemplated improvement at this site. The entire improvement, when completed, will include widening of the roadway in the vicinity of the site and the provision of parking areas for sightseers.

The contract for the bridge construction was awarded on December 8, 1939, to the Odom Construction Company of Oregon City, Oregon. Construction was completed on November 15, 1940, at a cost of $60,367.

Albany Overcrossing: This structure, a part of the general improvement of the Pacific Highway East through the City of Albany, carries highway traffic over the main line of the Southern Pacific Company's tracks. The structure, steel frame and concrete construction, is 550 feet long with a 48-foot roadway and sidewalks for pedestrian traffic.

The contract for the work was awarded on January 31, 1939, to the Mountain States Construction Company of Eugene, Oregon. Work was completed on December 15, 1939, at a total cost of $132,387.15.

Klamath Falls Grade Separation: This is one of the most important of the grade separation projects constructed in the State during the past biennium. The structure carries Main Street vehicular traffic under the main line of the Southern Pacific Company's tracks, thus eliminating an extremely hazardous grade crossing. The structure is not on the highway system, but it was constructed under State supervision from funds made available for such projects by the Federal Government.

The contract for the work was awarded on November 17, 1938, to C. J. Montag & Sons of Portland, Oregon. Work was completed on October 10, 1939, at a cost of $100,421.32.

Devils Lake Fork of Wilson River: This is one of the major structures on the Wilson River Highway. The stream is in a deep canyon, and the bridge and roadway level cross at about 130 feet above the stream bed. Steel tower and viaduct construction has proven satisfactory for this type of crossing and was used at this location. The bridge is 606 feet long with a 26-foot roadway and two 3-foot 6-inch sidewalks.

The contract for the work was awarded on December 7, 1939, to McNutt Brothers of Eugene, Oregon. All work, with the exception of one coat of paint, is complete at this time.

Tigard Grade Separation: Realignment and improvement of the Pacific Highway West through Tigard required the construction of an overhead crossing over the tracks of the Southern Pacific Company, the tracks of the Oregon Electric Railway Company, and over Fanno Creek. The improvement, in general, takes traffic off the main street of the City of Tigard and eliminates a dangerous grade crossing of the tracks of the two railroad companies. Both structures are conventional reinforced concrete viaducts, providing 4 vehicular traffic lanes and sidewalks on both sides.

The contract for the work was awarded on March 2, 1940, to the Jacobsen-Jensen Company of Portland, Oregon. Work was completed on October 5, 1940, at a cost of $86,292.50.

Oregon City Section: Realignment and construction of the Pacific Highway East through Oregon City required the following work: (a) widening the existing bridge over Abernethy Creek, (b) construction of 336 feet of reinforced concrete partial viaduct, (c) construction of 371 feet of reinforced concrete viaduct, (d) reconstruction of 646 feet of existing retaining wall and placing sidewalk for this wall, (e) construction of 173 feet of reinforced concrete retaining wall, and (f) remodeling the existing structure over the Willamette River by removing one bent of the approach to provide clearance for the new roadway passing under the existing bridge.

The widening of the existing structure over Abernethy Creek was done under a contract awarded on January 23, 1939, to the Odom Construction Company of Oregon City, Oregon. Work was completed on July 31, 1939, at a cost of $17,558.72.

Construction of the partial viaduct, sidewalks, and retaining walls was done under a contract awarded on January 12, 1940, to Barham Brothers of Salem, Oregon. Work was completed on September 30, 1940, at a cost of $28,925.60.

Construction of the viaduct and remodeling of the bridge over the Willamette River was done under a contract awarded on October 4, 1939, to McNutt Brothers of Eugene, Oregon. Work was completed on November 2, 1940, at an estimated cost of $77,392.

REPORT OF LEGAL AND RIGHT OF WAY DEPARTMENTS

J. M. DEVERS, *Chief Counsel*

Since the last biennial report was made, the Legal and Right of Way Departments have continued to operate as a single organization. Both departments are under the general supervision of J. M. Devers, as Chief Counsel to the Highway Commission, with J. W. DeSouza, Assistant Attorney, in immediate charge of the right of way or land division.

The legal staff consists of J. M. Devers, Chief Counsel; J. W. DeSouza, Assistant Attorney; I. M. Schannep, Title Examiner; W. A. Martin, Office Attorney; Pauline Welch, Secretary to Chief Counsel; and Anona Welch, Secretary to the Assistant Attorney.

The right of way or land division consists of A. B. Kneass, Real Property Office Man; W. J. Minkiewitz and John Holmes, Assistant Real Property Office Men; C. W. Parker, Land Appraiser; Mark McCallister, Harry G. Benson, William F. Collins, William S. McChesney, C. L. Gardiner and Ray Landon, Right of Way Agents; Cecile Knox, Florence Carter, Thelma Taylor and Alta Vivian Gell, Stenographers.

During the past two years changes have taken place in the laws governing the conduct and fixing the authority and powers of the Commission. All of the several pieces of legislation enacted since the inception of the Commission in 1917 were gathered under one chapter, obsolete parts were deleted, new provisions were added and additional duties and powers prescribed, and then the entire compilation was submitted to the 1939 legislative session and was passed by the legislature without change.

The new act gives to the Highway Commission more authority and liberty in dealing with counties with respect to roads not on the highway system and in dealing with cities with respect to streets which are not parts of highway routes.

A new and useful addition to the new highway code is the authority vested in the Highway Commission in the exercise of which the Commission may, when acquiring rights of way by purchase, agreement or by the exercise of the power of eminent domain, acquire the owners' right of access to the highway. The result of this added power is that with respect to new highways the Commission may, if the right of access has been acquired from all abutting owners, establish, construct and maintain a freeway.

The legislature will convene again in January, 1941, and several new pieces of proposed legislation have been prepared by the Highway Commission and will be offered to the 1941 legislature for consideration and passage. The most important piece of proposed legislation is a very comprehensive freeway bill. A copy of this proposed bill has been sent to every state highway department with the hope that in those states where consideration is being given to like legislation all possible uniformity may be accomplished.

In the two-year period just closing the right of way and legal departments have handled many real property transactions, of which 1,348 were for right of way, 147 for quarry sites and gravel pits, 148 for stockpile sites, 97 for parks, and 69 for miscellaneous purposes.

In connection with the above transactions there was involved the sum of $1,307,271.

During the biennium just closing there were instituted 83 condemnation actions, of which 54 were settled either through agreement or trial. There are still pending for trial 29 cases.

Altogether the Highway Commission has been interested during the biennium in 94 cases, in a few of which the State was made defendant. In practically all of the cases in which the Commission was involved as a defendant the State's interest was disposed of by agreement or terminated satisfactorily so far as the State was concerned.

In addition to the litigation handled by the legal department, 140 contracts, leases and other legal papers have been prepared and 226 construction contracts have been examined and passed upon as to form and other legal features.

The acquisition of real property for right of way, parks, material sites and all of the other activities of the Highway Commission in connection with which real property is acquired involves the usual work of examination of titles and other matters connected therewith. In the acquisition of real property where the consideration is $500 or over, title insurance is required, and the premium paid by the State as a part of the consideration. In this connection the State has paid as premiums on title insurance, including abstract fees, during the closing biennium the sum of $34,000.

The right of way men are trained, experienced appraisers and invariably contact the owners in a spirit of negotiation. This has resulted in reducing in a large measure the instances where property must be acquired by eminent domain. Many of the eminent domain cases instituted are for the purpose not primarily of establishing compensation but for the purpose of acquiring title by court decree because of inability of some of the owners to agree among themselves or because of the fact that the owners are nonresidents. In other words, the large number of condemnation actions shown in this report does not mean that every case represents a contest.

One of the principal projects which has engaged the attention of the right of way organization during the past year has been the proposed Front Avenue project in Portland. In general, this project extends from the intersection of Front Avenue and Barbur Boulevard on the south, northerly to the Steel Bridge across the Willamette River on Glisan Street, and thence to a connection with Interstate Avenue.

The project is a cooperative one, with the State Highway Commission paying 40 per cent of the right of way costs, or a maximum of $800,000, and the city paying the balance, and the right of way negotiations have been handled jointly by representatives of the Commission and of the city.

The total estimated cost of the right of way on the project is approximately $2,000,000 and activity was devoted first to the portion between Columbia Street and Glisan Street. The total appraised value of the right of way on this portion is $1,268,949.16. Wherever possible options were secured, but owing to the requirements of the City of Portland Charter legal proceedings were initiated by the City Council which embraced all of the properties within the limits mentioned, it being understood by those from whom options had been secured that the inclusion of their particular properties was only a formality and that the amounts to be paid would be the agreed amounts. A total of 52 properties was involved and all of the awards, as set out in the City's proceedings, have been accepted, with the exception of 11 individual parcels, on which protests were filed. These 11 properties had an appraised valuation of $245,219.10, being 19.33 per cent of the total appraisal. These protests were rejected by the City Council on November 16, 1940, and it is not known at the time of writing this report just how many appeals may be taken to the Circuit Court.

The plans for the Front Avenue project contemplate the construction of a series of ramps so that traffic may use the railroad bridge, which is a double deck bridge constructed by the railroads across the Willamette River under a franchise issued by the Port of Portland. This bridge has heretofore been operated under a lease agreement between the railroads and Multnomah county but under the new arrangement will be operated under a lease agreement between the railroads and the State Highway Commission. The lease agreement covers a period of 30 years and calls for the payment of a rental of $65,000 a year. The franchise issued by the Port of Portland for the construction of the bridge called for a bridge that would not only accommodate railroad traffic but would provide an upper deck for pedestrian, vehicular and street car traffic. Friendly cooperation by the railroads and the State has prevailed throughout negotiations between the State and the railroads.

The chief counsel in addition to giving attention to the various details mentioned in this report is called upon to attend all meetings of the Highway Commission and to advise the Commission and the personnel of the Highway Department with respect to all transactions or conduct requiring legal advice.

REPORT OF TRAFFIC ENGINEERING DEPARTMENT

JOHN BEAKEY, *Traffic Engineer*

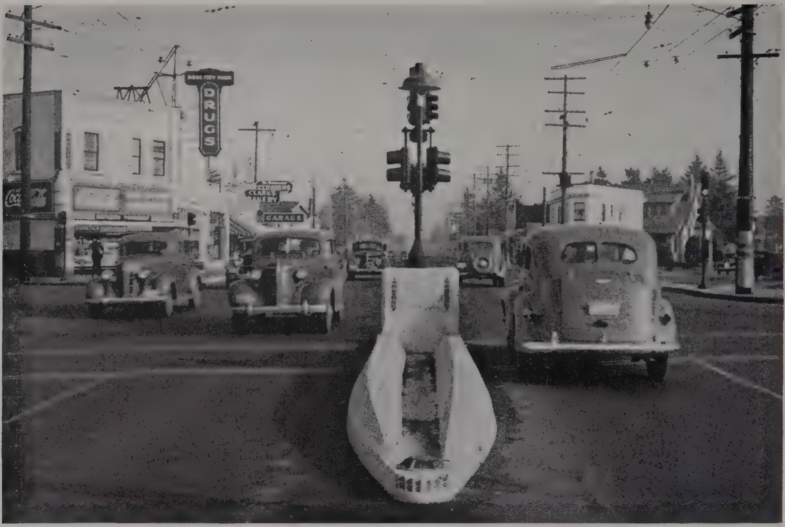
The principal duties of the Traffic Engineering Department are those relating to highway operation and geometric design. In other words, the facilitation of traffic movement and the safety of highway users.

The Division has also handled the State-wide Highway Planning Survey, described in the thirteenth biennial report, but the last biennium has witnessed the completion of the work originally contemplated and at the present time only the continuing, or what may be termed permanent phases of the survey are in progress as well as some special investigations financed with Planning Survey funds.

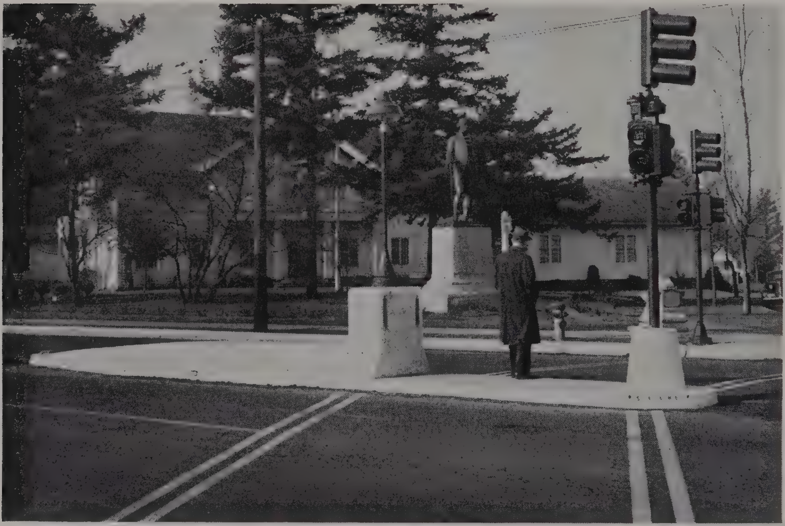
The maps prepared from Planning Survey data, particularly the county map series and traffic station maps, have proved quite popular. Approximately 30,000 maps have been circulated during the past two years. Most of these were sold at cost to private agencies and individuals, while others were exchanged on a reciprocal basis with various governmental agencies.

An important part of the work of the Division is that of investigating accident-prone locations and recommending such remedial measures as may be indicated and feasible. Specific investigations have been made of some 244 urban intersections and 29 rural intersections in the past two years, the greater part of the urban intersections being located on state highway routes. Practically all of such investigations required the preparation of collision diagrams and for a great many of them condition diagrams were prepared.

In addition to the separate intersection investigations, complete and detailed analyses of accident conditions have been made for several cities, including Salem, Bend, Klamath Falls, and others. Not included in the analyses mentioned hereinbefore are some 54 miles of rural highway which have been studied for the purpose of improving design and operation.



BUFFER END OF PEDESTRIAN ISLAND ON N. E. SANDY BOULEVARD (US 30) AT 57TH AVENUE, PORTLAND. NOTE FLOODLIGHTS AND BUILT-IN REFLECTORS



SIDE VIEW OF PEDESTRIAN ISLAND ON N. E. SANDY BOULEVARD (US 30) AT 57TH AVENUE, PORTLAND. NOTE PEDESTRIAN "WAIT-WALK" SIGNALS

Unfortunately, the method of accident analysis hitherto employed was designed primarily to satisfy the needs of those engaged in educational activities so that the preparation of collision diagrams and other data pertinent to the investigation of accidents from an engineering standpoint could be obtained only by manual sorting. Needless to say, this required considerable time and expense.

Recently, however, in cooperation with the office of the Secretary of State to which the accidents are reported, the procedure has been revised. Under this new arrangement, all coding and tabulating of the accident reports will be done by the Traffic Engineering Division. The revised procedure necessitated the designing of a new and more complete tabulating machine punch card and some changes in the accident reporting form. The same tabulations as were formerly obtained will still be available for educational work, but in addition, the work of the Traffic Engineering Division will be greatly facilitated as well as that of enforcement agencies.

The approval of the State Highway Commission is required by law before any type of traffic signal may be installed within a municipality. This has necessitated a great many investigations for the purpose of determining whether or not such signals are necessary, and, if necessary, what type should be installed. In this respect, a conservative course has been followed and many more requests have been rejected than have been approved. It has been considered that the indiscriminate installation of signals would serve only to render such devices ineffective where really needed.

Recognizing a certain responsibility in the matter, the State Highway Commission has adopted a policy of paying one-half the cost of the purchase and installation of fixed-time and traffic-actuated signals on the routes of state highways within municipalities, and the entire cost of flashing beacons on such routes, provided the municipalities assume the cost of operation.

Notwithstanding the conservative policy followed by the Department, overhead flashing beacons were installed at some 37 locations both urban and rural, during the biennium at a cost of approximately $6,700 and several others are recommended for installation at the time this is written. Each location was investigated thoroughly before approval.

Traffic signals have been installed at the following locations during the biennium:

1. Front (US99E) and Monroe Streets, Milwaukie (revision in traffic-actuated signals).
2. Riverside (US99) and Main Streets, Medford (fixed-time signals).
3. W. Burnside (US30) and 19th Avenue, and S. W. Morrison and 18th Avenue, Portland (synchronized fixed-time signals).
4. W. Burnside (US30) at 10th and 11th Avenues, Portland (synchronized fixed-time signals).
5. Sandy Boulevard (US30) between 16th and 42d Avenues, Portland (flexible progressive system including nine intersections—conduit installed in 1938).
6. Sandy Boulevard (US30) between 42d and 72d Avenues, Portland (flexible progressive system including six intersections).
7. Interstate Avenue (US99W) between Argyle and Russell Streets, Portland (flexible progressive system including nine intersections—conduit installed in 1938).
8. S. W. 4th Avenue (US99W) at Sheridan and Caruthers Streets, Portland (synchronized fixed-time signals).
9. S. W. 4th Avenue (US99W) between Oak and Jefferson Streets, Portland (flexible progressive system, including 11 intersections).
10. Fifth (US99E) and Main Streets, Oregon City (fixed-time signals).
11. Main Street Undercrossing, Klamath Falls (synchronized signal at two intersections).
12. Junction of US99E and ORE20 near Albany (traffic-actuated signals).
13. S. W. McLoughlin Blvd. (US99E) and 17th Avenue, Portland (revision in existing fixed-time signals).

Most of the above listed projects were cooperative between city and state.

In addition to the above-named projects, several others are either being installed or approved with plans in preparation. Still others are under consideration. Among these are the following:

1. Junction of US 99, US99E and US99W (Denver and Union Avenues) Portland (traffic-actuated signals, including channelization).
2. S. W. McLoughlin Blvd. (US99E) and Tacoma Street, Portland (traffic-actuated signals).
3. Edgewater (ORE22) at Kingwood and Clark Streets, West Salem (traffic-actuated speed control signals).
4. E. Burnside (US30) between Union and 13th Avenues, Portland (flexible progressive system including some channelization).
5. First Street (ORE26) at Ellsworth and Lyon Streets, Albany (synchronized fixed-time signals).
6. City of Klamath Falls (traffic-actuated signals at two isolated intersections and a flexible progressive system including eight intersections).
7. City of Marshfield (flexible progressive system including three intersections).

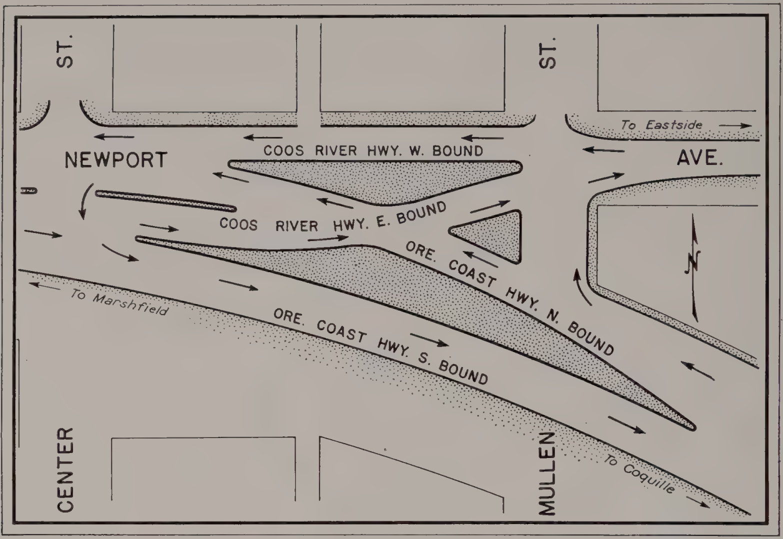
Among the most important of the systems listed for installation is that to be installed on East Burnside between Union and 13th Avenues in Portland. This system will include the intersection of East 12th and Burnside where six streets intersect to the confusion of the motorist.

One of the phases of the Planning Survey in progress during the biennium has been the Municipal Grade Crossing Survey. From data obtained from this survey and the inventory, a priority rating of all grade crossings in the state has been set up for the purpose of selecting those for immediate elimination or signalization by means of Federal Grade Crossing funds. A description of the formula would require more space than that available in this report. Described briefly, however, it takes into account traffic volume, (both rail and highway), location of crossing, accident record, type of accident, time of occurrence and similar factors.

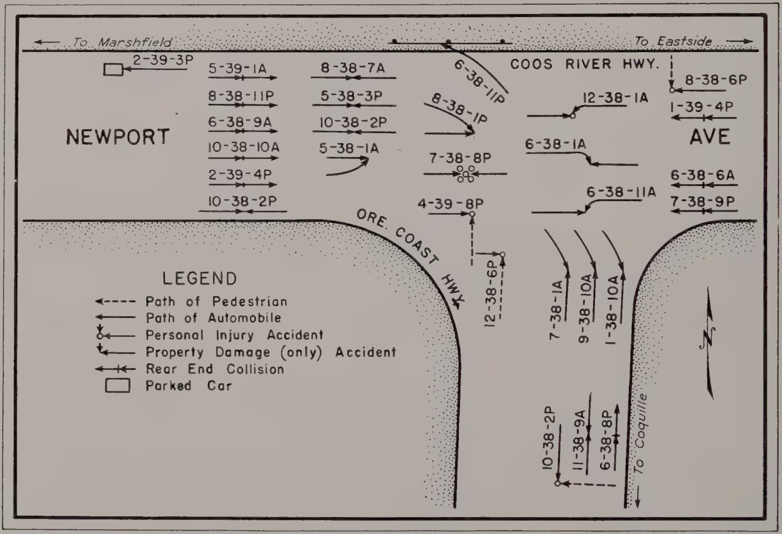
From the priority list, some 28 of the worst grade crossings were selected for signalization after conference with the railroads involved. Plans for the signal installations were prepared by the Division with the railroad companies furnishing the wiring diagrams. The cost of the several installations is estimated to be approximately $60,000.

A considerable part of the time of the Traffic Engineering Division is now spent in cooperation with the Construction, Bridge and Office Engineering Divisions in checking over plans of proposed projects with regard to geometric design. (See page 128.) Special emphasis has been given to channelization at intersections and to pedestrian safety as well as proper lane width and parking facilities. Channelization has also been extended to roads and intersections already constructed where accident experience or congestion indicated the need of such work. Among the more important projects included are the Bunker Hill section (US101), Sandy Boulevard section (US30), Albany section (US99E), Grants Pass section (US99), Tigard section (US99W), Lombard Street section (US30-Alt.), and the intersection of US99E and US99W (proposed).

Probably one of the most effective means of controlling the lateral placement of traffic on four-lane roadways has been the construction of raised asphaltic bar (see page 27) in the four-foot neutral zone. About 20 miles of roads of that width have been so treated. While these bars do not damage vehicles, they have been found, due to the unpleasant bump experienced in running over them, excellent deterrents to those who insist on driving three abreast.



INTERSECTION OF OREGON COAST HIGHWAY (US 101) AND COOS RIVER HIGHWAY AFTER RECONSTRUCTION AND CHANNELIZATION SHOWING PERMISSIBLE MOVEMENTS



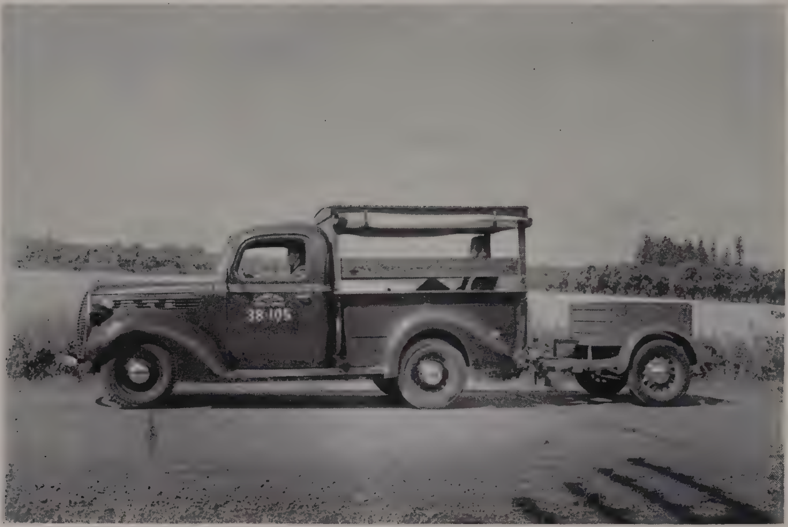
COLLISION DIAGRAM OF INTERSECTION OF OREGON COAST HIGHWAY (US 101) AND COOS RIVER HIGHWAY FOR 18 MONTHS PRECEDING RECONSTRUCTION AND CHANNELIZATION

An important function of the Division has been the making of monthly traffic counts at about 100 key counting stations located throughout the state. Each of these stations is counted for an eight-hour period on a week-day in each of eight months of the year and in the other four months (February, May, August and November) they are counted for a 24-hour week-day and certain of them (50) for a 24-hour Saturday and a 24-hour Sunday. From these counts and data supplied by the automatic traffic recorders, factors are obtained which may be applied to short counts made previously at other points and thus the fluctuations in traffic density on practically any road in the state may be obtained.

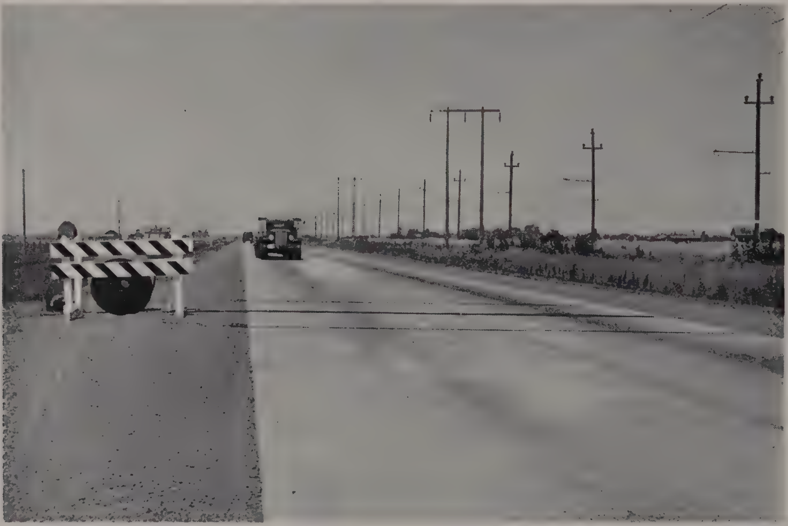
In addition to the regular monthly counts, numerous special counts have been made of both vehicles and pedestrians in connection with individual investigations and surveys.

The Division has encouraged the organization of student patrols at school crossings, but inasmuch as such patrols are not feasible at all crossings, particularly rural, it has been necessary to investigate nearly every one so that appropriate recommendations could be made to the school authorities. The Department furnishes, without charge, equipment for the use of the patrols, consisting of yellow belts and helmets and portable silhouette school-boy signs to be placed in the center or at the side of the road during school hours. Equipment has been furnished to approximately 110 schools during the biennium.

One of the problems confronting most state highway departments is that of providing facilities for pedestrians in rural areas. In this respect Oregon is no exception. The question has been to determine if rural sidewalks perform any useful purpose and, if so, where should they be constructed with the funds available. To this end, the Division has recently completed a rural sidewalk survey and set up an empirical formula to determine a priority rating for such projects. It is probable that construction of rural sidewalks will be undertaken in 1941 on existing highways. These will not include those which may be built as part of new construction projects.



LIGHT TRUCK AND TRAILER WITH INTEGRATING DYNAMOMETER COUPLED BETWEEN, USED IN MEASURING SKID-RESISTANT CHARACTERISTICS OF PAVEMENT SURFACES



MEASURING SPEED AND LATERAL PLACEMENT ON U. S. 99 NEAR EUGENE WITH BARRICADE SERVING AS SIDE-OF-ROAD OBSTRUCTION. NOTE DETECTOR TUBES ACROSS PAVEMENT

An interesting research project conducted by the Division during the biennium is that reported in detail in the Department's Technical Report No. 39-5, "A Preliminary Report on Skid-resistant Characteristics of Oregon Pavement Surfaces". The objective of this investigation was to determine the skid-resistant properties of the several types of pavement surfaces being constructed by the Department and the method used was very similar to that employed by Professor R. A. Moyer of Iowa State College. The equipment used consisted of a light truck and a small two-wheeled trailer between which was coupled an integrating dynamometer (see page 130). A full description of the procedure and the conclusions may be found in the publication mentioned hereinbefore. Additional work of this nature is planned for 1941.

Another research project of interest is the Highway Capacity Study, the field work for which was undertaken during the summer of 1940 in cooperation with the Public Roads Administration and with equipment furnished by that agency. The purpose of this study was to obtain data relating to geometric design. It included studies of passing practice under varying conditions, the speed and lateral placement of vehicles, hill-climbing ability of trucks of various weights, and acceleration and deceleration at an intersection controlled by traffic signals. Particular attention was given to the effect of side-of-road obstructions on speed and lateral placement (see page 130). Space does not permit a detailed explanation of this survey, but the data obtained is now in process of analysis and the results will be reported in 1941.

Realizing the need of more factual data concerning the movement of traffic not only into and through the city of Portland, but from one section of the city to another, the Commission authorized an origin and destination survey of the city which was made in September, 1940. The data obtained is now being analyzed and should be completed about February, 1941. The methods used in making the survey are too detailed to explain herein but will be explained in the completed report. An excellent response was received from the public, who were handed questionnaires, due in no small measure to the fine co-operation of the Portland newspapers in the way of publicity both printed and radio. It is expected that the data obtained will be of inestimable value in planning future improvements into and through the city.

As a means of determining the efficacy of flexible progressive traffic signal systems in facilitating traffic movement on main arteries, surveys have been made of two such streets in Portland. On S. W. 4th Avenue, where it was planned to install a signal system extending over a distance of approximately one-half mile and including 11 intersections, the license numbers of vehicles were recorded and the running time determined by means of synchronized electric clocks. This was done both before and after installation of the signals so that a comparison could be made. Similar surveys were made on N. E. Sandy Boulevard in Portland and in Albany where a by-pass route was recently constructed around the main business district of the city. The results of these surveys will be used in a bulletin now in preparation and which will deal with the effect of alignment, surface types, grades and congestion on transportation costs. A great amount of work in obtaining and assembling data for this bulletin has been done during the biennium.

The marking of "no-passing" zones was inaugurated by the Department in 1940, the state having refrained from following such practice until a uniform method of marking had been adopted by a majority of the several states. In establishing the criteria, the Traffic Engineering Division cooperated with the Construction Engineering Division although the staking in the field was handled by the Construction Engineer and the actual painting by the Maintenance Division.

Among the miscellaneous activities of the Division have been the design of standard signs, signals and other traffic control devices and items of a similar nature.

REPORT OF TRAVEL AND INFORMATION BUREAU

HAROLD B. SAY, *Travel Bureau Manager*

It was with the objective of increasing nonresident travel on Oregon's highways, with the added revenue in the form of gasoline tax which such traffic means, that the Highway Commission in 1935 established its Travel and Information Department. This Department was charged with the task of publicizing to the world the scenic and recreational attractions of the state conducive to bringing motorists to Oregon and over its highways.

With this objective in view, a total of $120,000 was spent in general operations through the Travel and Information Department in 1939, plus $40,000 used specifically to help tell an effective story of Oregon on Treasure Island at the Golden Gate International Exposition. In 1940, about $102,000 was spent in general operations—advertising in magazines and newspapers, booklets, motion picture distribution, photography, postage and express and related items—and $8,000 in helping carry forward Oregon's participation in the second year of the Golden Gate International Exposition.

Indicative of the general effectiveness of the Highway Department's endeavor to increase tourist travel is the fact that nonresident travel on Oregon's highways has increased more than 50 per cent since the department entered the field of tourist travel promotion in 1935.

In the way of specific return, nonresident motorists contributed a total of more than $3,176,000 in gasoline tax during 1939 and 1940, nearly twelve times the amount spent in that same period by the Highway Department to aid in bringing them to the state.

Aside from the gasoline tax direct return to the State's highway funds, these nonresident private motor car visitors spent in the neighborhood of $48,000,000 while in Oregon—new money brought from the outside to circulate in every business channel.

Surveys covering several thousands of visitors show that the average expenditure per day of nonresident motor cars while in Oregon is slightly over $10, that the average stay is around 10 days, which means that the average value of visiting cars is more than $100 each.

The year 1939 saw many thousands of cars in Oregon for the first time, visitors from distant areas who included this state on their itinerary to Treasure Island. It is the belief of most travel authorities that many of these folk will be "repeaters" in future years.

The year 1940, from the best indications available, produced an increased volume of travel or mileage on Oregon highways. The gasoline tax intake for the first nine months of the year totaled $9,850,375.12, a gain of $749,031.70 over the corresponding months of 1939. Crater Lake National Park, where an accurate check of all visitors is kept, showed a gain of 12.2 per cent for the 1940 season over that of 1939. Slightly over half of 44 typical resorts of the state replying to a questionnaire survey conducted at the end of the summer of 1940 reported better business in that year than in 1939. In short, notwithstanding the depressing effect which the European war had on travel early in the summer of 1940, travel has shown a continued upward trend.

To give as briefly as possible some of the operations of the Travel and Information division of the Oregon State Highway Department in promoting tourist travel to the state, the following facts are presented:

Advertisements carried in national magazines, motor publications, and newspapers during 1939 and 1940 aggregated more than 220,000,000 reader messages. These set forth the scenic and recreational attractions of the state designed to induce motorists to desire to visit Oregon, enjoy its scenic attractions and recreations—and travel its highways.

Informative, attractive booklets, maps and folders printed in the two-year period totaled 873,000.

Specific direct mail inquiries for travel information on Oregon totaled 132,000 (to November 1, 1940). These were answered with letters and the state's illustrated booklets, augmented frequently by material published by various regional and civic organizations of the state.

It is estimated that 250,000 informative pieces on particular phases or sections of the state, published by other organizations, were distributed by the Department. These included material assembled by the National Parks Service, U. S. Forest Service, Chambers of Commerce, Regional Highway associations and other groups interested in development of travel to and over Oregon's highways.

The Department's folders and maps have been distributed through nearly 5,000 travel directing agencies in key travel points of the nation, such as motor clubs, chamber of commerce travel bureaus and kindred bodies.

"The New Oregon Trail", a two reel, talking motion picture embracing the high spot scenic and recreational attractions of the entire state, has been shown to selected audiences totaling well over 2,000,000 during 1939 and 1940. One hundred prints of this film have been in circulation with showings concentrated before noonday luncheon clubs, travel organizations, parent-teacher associations, and other bodies primarily of adults. These showings have been concentrated in areas from which the state receives and may logically expect to receive its heaviest travel. Approximately 100,000 persons saw the film in the Highway Department's little travel theater on Treasure Island.

So popular has the film been and so effective in producing travel, that it is being reproduced in natural color. This new vehicle will be ready for use early in 1941.

The Department furnishes a continual flow of news story material dealing with travel attractions to newspapers and other publications. It is impossible to measure the value of these motor logs and kindred material, but it is conservative to say that the space devoted to Oregon in 1939 and 1940 in these stories, if paid for at normal advertising space rates, would have cost more than $300,000. Written in news form, presented while timely and illustrated with first class photographs, this material was accepted and published without cost to the state.

Over the past two years, the Department has utilized enlarged photographic and illuminated displays of Oregon scenes in natural color to a substantial degree. Without cost, other than that for the making of the permanent displays and their shipment, these have been shown in windows of the nation's heaviest traveled streets, in lobbies of the country's largest motor clubs, hotels and other places where potential travelers gather.

Arrangements have been made for Oregon's participation in some of the nation's outstanding travel shows such as: Outing Shows of the Automobile Club of Southern California at Los Angeles; Southwest Road Show and School, Wichita, Kansas; Chicago Daily News Travel Exposition; Cincinnati Enquirer Travel Show; Indianapolis News Travel Show; Travel-Vacation Playground Exposition, Oakland; and Packard Motor Car Company "Open House", New York City. These are specifically travel shows. Oregon has been presented to the hundreds of thousands gathering at them each year through motion pictures, illuminated displays and through the distribution of informative folders.

It would seem in order to point out that, although the direct objective of these advertising and promotional activities is the increasing of travel on the state's highways, the very nature of the material and media used is such that it simultaneously has effect in stimulating travel to Oregon by rail and air. And a considerable percentage of traffic coming to Oregon via other means than automobile, once here, likewise travels Oregon highways. Estimating for the totals that come by other means than their own automobiles, it is conservative to say that the total spent annually by nonresident visitors in Oregon is in the neighborhood of $45,000,000.

In summary, over the past biennium and previous years, effort has been made to stretch the allocation for this work just as far as it will go in selling the desirability of trips to Oregon and in meeting the constantly increasing competition of other regions for a real share of the nation's tourist traffic.

REPORT OF STATE PARKS DEPARTMENT

SAMUEL H. BOARDMAN, *State Parks Superintendent*

The biennial period of 1939-1940 is another mile stone in Oregon's State Park history, marking an aroused public interest in state-owned parks. This interest has reflected itself, wherever demands required, in a widening and improvement of park areas, together with an increase in park facilities, to keep pace with the ever growing attendance.

Caretakers' reports indicate that park usage for church, school, fraternal and similar group assemblages is also increasing. Large groups frequently requesting reservations for tables and stoves, weeks ahead of their visits, occasionally requiring almost the entire resources of the particular park they may visit. Such groups are generally orderly and pleasant and usually leave a minimum of scattered refuse or litter behind them. They are desirable visitors and stimulate park attendance. This group usage is reported from all the parks which have facilities to provide for their accommodation. Silver Creek Falls Park, due to its central location, attractiveness and more extensive facilities, is in greatest demand by organized groups.

The following tabulation shows the estimated total park attendance for three years:

State-wide Parks
1938, persons, 1,139,041
1939, persons, 1,668,557—gain, 299,516—22 per cent
*1940, persons, 2,003,951—gain, 335,394—20 per cent

All Coastal Parks
1938, persons, 942,345
1939, persons, 1,215,846—gain, 273,501—22 per cent
*1940, persons, 1,460,573—gain, 244,727—20 per cent

Lincoln County Parks
1938, persons, 726,633
1939, persons, 962,433—gain, 235,800—24 per cent
*1940, persons, 1,132,923—gain, 170,490—18 per cent

Silver Creek Falls Park
1937, persons, 79,164
1938, persons, 110,388—gain, 31,224—39 per cent
1939, persons, 176,780—gain, 66,392—27 per cent
*1940, persons, 199,616—gain, 22,836—13 per cent

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* Figures to and including November 30, 1940.

Silver Creek Falls Park holds first place for an isolated, individual park, located away from the main routes of travel. The coast parks draw the greatest mass attendance, with the Lincoln County group of eight parks far ahead of other groupings. This is not surprising when it is considered that 63.3 per cent of Oregon's population (1940 census) is within little more than two hours drive of this splendid foreshore, which may be reached over several good highways. These advantages can be counted upon to continue its popularity into the future.

BATHHOUSE BUILT BY CCC LABOR. JESSIE M. HONEYMAN STATE PARK SOUTH OF FLORENCE

The scenic Depoe Bay area, with its tiny, picturesque cove, which harbors many small seagoing fishing craft, seemingly draws the moving crowds, and their cars occupy every foot of available parking space in the neighborhood, with visitors congesting every point of vantage from which they may view the boats coming and going through the wave-tossed entrance.

Since its acquisition and development by the State Parks Department, Azalea State Park, near Brookings, in Curry County, has come into wide prominence because of its splendid showing of native azaleas, reported to be the finest in the United States. The extensive admiration created by this rich flowering has resulted in the establishment of an annual fete day sponsored by the people of the Brookings vicinage for a yearly festival gathering of azalea admirers to celebrate the occasion, when the abundant blossoming is at its best, usually sometime about the middle of May.

When the Wolf Creek and Wilson River Highways are entirely completed and the Hug Point-Arch Cape and Neahkahnie Mountain Sections of the Coast Highway are opened to travel, the attractive, but now isolated, Ecola and Short Sand Beach Parks and other state parks of the vicinity, will undoubtedly get a full share of the increased Portland traffic to which the shorter distance, with a loop return, will make a strong appeal. To some extent at least, this eventuality should tend to lessen the week-end and holiday congestion in the Lincoln County area.

The personnel engaged in caring for the active parks number 12 year-around caretakers, 10 seasonal caretakers, three full-time assistants and six seasonal assistants.

During the period of this report the further acquisition of state park lands has proceeded consistently, selections having been made with thought of the future in mind as well as thought of immediate needs. The new acquisitions comprise the following:

Classification	*Number*	*Acres*
Parks	41 tracts	3,229
Timber reserve, waysides, Wolf Creek, Wilson River, Salmon River and Sisters Triangle	21 tracts	4,048
Recreational leases	2 tracts	4,003
Parkways	3 tracts	23
Totals	67 tracts	11,303
Total acreages to date, all classifications and all forms of acquisition, are		32,423

Most of the new acreage is for the strategic expansion of existing parks, and for selected areas of choice, typical stands of virgin forest bordering the highways. The Salmon River, Wolf Creek and Wilson River waysides are outstanding examples of selections of the latter class. These are splendid avenues through old stands of Douglas fir, Sitka spruce and Western hemlock lumber forest, for the pleasure and edification of present and future generations. Interested counties, individuals and lumber companies have generously deeded to the State areas of cut-over land adjoining the highways which will soon restock and, in time, mature into a beautiful, more wind resistive type of forest than are the isolated remnants of old mature timber. This timely ahead-looking reservation of forest waysides, whether of old growth or cut-over lands, along the main arteries of travel in this region of the World's finest lumber trees, will be a feature of inestimable scenic value in the days of the future when the logger has completed the devastation of the adjacent holdings. Continual vigilance from now on will be the price of their protection from fire, but their preservation will fully justify the effort.

During the biennium, six camps of Civilian Conservation Corps workers were engaged in the improvement of State parks, as follows:

S. P. 9	Silver Creek Falls	—continuous
S. P. 10	Woahink	—1½ periods
S. P. 11	Saddle Mountain	—continuous
S. P. 18	Short Sand Beach	—1½ periods
M. A. 1	Cape Arago (side camp)	—1½ periods
M. A. 2	Casey (side camp)	— ½ period

Although the Civilian Conservation Corps camps operating in the State parks under the direction of the technical forces of the National Park Service, are now fewer in number, it is noticeable that a higher type of work is being performed and the jobs are being carried on in a more efficient manner due to the camps having settled down to established routine programs of development under a more experienced supervising personnel. In the later periods, the park buildings have been well planned, are of sound construction, practical, serviceable and of pleasing architecture. Better water and sewage disposal systems have been installed, better roads and trails have been built and there has been an improvement in the technique of all the work carried on that is a credit to all who have participated in its performance. Unquestionably the CCC camps have greatly enriched Oregon's state parks, and set their development 10 years ahead of what their advancement would otherwise have been.

A continuously operating CCC camp has been maintained at Silver Creek Falls Park and during this report period many essential improvements have been made. Completion of the very attractive concession building is the outstanding structural improvement. The building is now awaiting the finishing of the beautiful Oregon myrtle wood furniture which is being made for it in Portland under the auspices of the Works Progress Administration as an Oregon Arts project. The logs, from which the myrtle wood for the furniture was cut, came from the unusually large myrtle wood trees which grow on the banks of the Chetco River in Curry County. The circumstances of their generous donation, their transportation and sawing hold a touch of drama, which was climaxed in the scientific kiln-drying treatment by the Forestry Department of the Oregon State College. After 76 days of careful processing, the lumber was taken from the kiln, almost entirely free of check, warp and casehardening. It was an achievement that will redound to the credit of those who participated in its treatment as it demonstrated that this temperamental wood can be cured with entirely satisfactory results.

The concession building when in operation will be something new in Oregon state park annals. It was designed to meet a public demand and it is particularly appropriate that it should be introduced in this popular and intensively used park.

Other major improvements in the Silver Creek Falls Park are a greatly increased parking area and a modern sewage disposal plant. When completed, the parking area will accommodate 1,330 cars. Unit No. 1 is oiled and ready for use with space for 220 cars. Unit No. 2, with space for 650 cars, is 30 per cent complete. In addition, the CCC forces have carried on extensive cleanup and fire hazard reduction work, and have been a strong backwall for forest fire protection.

In the Jessie M. Honeyman Memorial State Park, the Woahink Lake CCC Camp has operated as a winter camp only. The force at this camp, in addition to performing trail and clean-up work in Devil's Elbow and Tideways Parks, has practically completed the planned building program at Honeyman Park. This included a fine appearing and modern bathhouse, with all necessary appurtenances, supplemented by a float and diving boards. It has been in use two seasons, with a certified life guard in constant attendance during regulated bathing hours. On July 17, 1940, a new procedure in state park administration was inaugurated at the Honeyman Park in establishing a small charge for use of the bathhouse privileges, including showers and clothes lockers. In the past season, 528 adults and 542 children paid for the privileges the sum of $78.89. An equal number of bathers used the water equipment and enjoyed the protection the life guard afforded, without utilizing the bathhouse privileges. While these returns were not great, the innovation points the way to a possible future extension of the fee system for special privileges.

BATHING FACILITIES, LAKE CLEAWOX, JESSIE M. HONEYMAN STATE PARK

To meet the need for additional facilities, traveling crews of two men each have been employed renovating old and installing new stoves, tables and other facilities throughout the state. Entirely new facilities were set up in Azalea Park in Curry County, in Tub Springs Park on the Green Springs Highway in Jackson County, Booth and Chandler Parks in Lake County, Holman Park in Polk County and Bald Peak Park in Yamhill County. In addition, impressive entrance monument signs of stone and wood were erected at the gateways to the Jessie M. Honeyman Memorial State Park, Azalea State Park and at both ends of the Henry B. Van Duzer Forest Corridor, on the Salmon River Highway.

In the coastal park system a project of marked importance, accomplished by state park forces, was the building of a difficult 5.24 miles trail to the far end of Cape Lookout, a point which juts out into the ocean a distance of one and a half miles. The trail was laid out to reach points and angles of pleasing views of the ocean and of several miles of shore-line. A trip over it is an interesting experience. To poise on the brink of its extremity and look down upon the rolling seas, a sheer 400 feet below, is a thrilling sensation.

TABLE XXV

State Park Expenditures for the Biennial Period

July 1, 1938, to June 30, 1940

Class of Expenditure	*Expended July 1, 1938, to June 30, 1939*	*Expended July 1, 1939, to June 30, 1940*	*Total Expended July 1, 1938, to June 30, 1940*
Purchase of real property	$ 91,841.33	$ 79,558.65	$171,399.98
Improvements	11,953.75	14,416.83	26,370.58
Maintenance and operation	28,069.85	40,855.27	68,925.12
Totals	$131,864.93	$134,830.75	$266,695.68

REPORT OF MATERIALS DEPARTMENT

N. M. FINKBINER, *Engineer of Materials*

The Materials Department has three functions, namely:

1. Testing and inspection of all materials used in road and bridge construction and maintenance.
2. The design of concrete and bituminous mixtures, and their control in the field.
3. Research activities which fall within laboratory scope.

During the biennium, to which this report applies, 24,603 routine samples were tested and inspected. This total comprises a great variety of materials and products, including soil, gravel, corrugated galvanized iron pipe—plain and dipped, concrete pipe and tile, concrete cylinders, cement, rock, paint and paint ingredients, sand, road oil, asphalt, cutback asphalt, emulsified asphalt, road tar, filler, reflector buttons, lubricating oil, guardrail cable and posts, bituminous mixtures, ferrous and nonferrous metals and alloys, expansion joint filler, creosote, water, lumber and piling—green and treated, and fencing materials. All of these materials and products are supplied on rigid specifications and their use is not permitted unless the qualifying tests are met.

A very considerable increase in the amount of testing of soils has been noted during the past two years. Many of the problems connected with the construction of highways are affected by the types of soil encountered, and a knowledge of the soils and their characteristics is of much benefit to the engineer in the field. The correlation of laboratory classifications and information with field experience can be expected to produce a marked decrease of subgrade failures.

Quartered at the office of Division No. 1 in Portland, the Materials Department maintains two inspectors, who sample and inspect a large variety of materials produced in the metropolitan area for state highway use. Previous to this biennium, this work was performed by various individuals and private inspection bureaus on a piecework basis. The present method has proven much more satisfactory, as a greater volume of work is now handled more efficiently, with direct control by the Engineer of Materials.

All concrete and bituminous mixes are designed in the laboratory from test data obtained on samples of materials submitted from the field. Plant inspection crews are stationed at each mixing plant to maintain proper proportioning of the materials. These crews are composed of a plant inspector and one or two checkers, as the occasion demands. Granulometric analyses, moisture determinations, etc., are made at periodic intervals, and from the data thus obtained, minor adjustments in the mixes are made by the plant inspector as the need arises. Samples of the finished mixtures are submitted to the laboratory each day as a final check for compliance with specifications.

During the biennium, the laboratory has conducted a considerable research program directed toward improvements in the use of road building materials. The criterion of the quality of concrete is its strength at the age of 28 days. The speed of modern construction makes impracticable a delay of this length in ascertaining the strength. From approximately 6,000 tests conducted over a period of 10 years, a comparison was made of the test results at ages of 7 days and 28 days. With these data, a reasonably accurate forecast of the 28-day strength can be made from results of tests at the age of 7 days. There have been many different methods of concrete mix design proposed in the past few years. In order to keep our own procedure up to date, a critical examination of the most promising proposals was undertaken, checking upon the results with test specimens. The design procedure used in Oregon is a combination of methods that best fit the local concrete materials. In a few structures that are exposed to severe freezing and thawing the protection of the concrete surfaces by waterproofing has become important. A series of tests has been made to determine the most suitable waterproofing procedure. Experiments have been made in developing a new type of weakened-plane contraction joint in concrete pavement to control the inevitable cracking in this type of rigid pavement.

In the asphaltic concrete field, a laboratory method of analyzing asphaltic paving mixtures and of determining the characteristics of the recovered asphalt has been developed.

The possibility of judging asphaltic concrete by compressive tests on cylindrical specimens is being investigated. A survey of cracking in an asphaltic concrete pavement, placed on a cement concrete base, on the Swift Secondary Highway has been made, and the cracking correlated with analyses of the actual pavement.

New developments in soil testing have been followed. The department has purchased or built equipment suitable for making all standard soil tests.

G. W. Harra is Assistant Engineer of Materials, C. F. Hagemann is Office Manager, and O. A. White is Research Technician.

MISCELLANEOUS ACTIVITIES

Research

It is the purpose of the Highway Department to improve its design and construction practice in every way possible. Such improvements can be made intelligently only when based upon a detailed and complete knowledge of the problem in question. Considerable research has been done during the biennium to supply the necessary information upon which the progress in design and construction has been based.

During the biennium to which this report applies, three major investigations were completed, and the results were published in the form of technical bulletins. The light-reflecting characteristics of various pavement surfaces have been examined to determine the types of surface finishes which give the least glare from automobile headlights. The facts established by the investigation have led to modifications in the technique of finishing pavement surfaces which noticeably decrease the glare. The many advantages of the suspension bridge point to the desirability of extending its use to shorter span lengths than have heretofore been used. There are several sites within the State where structures of the suspension type might be the most economical. Such a possibility was indicated by the economic analysis made during the previous biennium. Studies have been continued, and a simple and rational design procedure has been worked out. This procedure has been published in Technical Bulletins No. 13 and No. 14.

In addition to the major studies reported on above, seven technical reports on matters of minor or local interest or in the nature of progress reports on continuing investigations have been published. Particularly noteworthy among these is a state-wide aggregate survey which lists the sources, characteristics, and qualities of concrete and road surfacing aggregates from the entire State. These data are taken from the records of the Materials Department covering a period of approximately 20 years. The publication of these data places a ready reference in the hands of maintenance, locating, and construction engineers. Also among the technical reports is a progress report on the skid-resistant characteristics of Oregon pavement surfaces. This study continues work done in Iowa and

Ohio and gives a very valuable comparison of the safety features of many pavement surfaces. From the results of the preliminary tests, information leading to better pavement design has been obtained. It is planned that these tests will be continued.

In addition to the formal reports which have been made, many minor investigations have been made supplying answers to problems which have risen from time to time.

Several investigations which are expected to have a noticeable effect on construction practice are now under way. These include a study of variable spacing of expansion joints in concrete pavement, including a determination of the expansive effect of moisture in concrete, and a completion of the study of short-span suspension bridges.

A list of the technical bulletins and reports published by the department follows:

Technical Bulletin No.	*Title*	*Authors*
1	Loading Tests on a New Composite Type Short Span Highway Bridge Combining Concrete and Timber in Flexure	R. H. Baldock C. B. McCullough
2	Application of Freyssinet Method of Concrete Arch Construction to the Rogue River Bridge in Oregon	A. L. Gemeny* C. B. McCullough
3	Loading Tests on Steel Deck Plate Girder Bridge with Integral Concrete Floor	G. S. Paxson
4	Design of Waterway Areas for Bridges and Culverts	C. B. McCullough
5	The Effect of Highway Design on Vehicle Speed and Fuel Consumption	John Beakey
6	The Effect of Heavy Motor Transport on Highway Bridge Stresses	C. B. McCullough G. S. Paxson
7	The Economics of Highway Planning	C. B. McCullough John Beakey
8	Determination of Highway System Solvencies	C. B. McCullough
9	The Merit System for Engineering Personnel	R. H. Baldock C. B. McCullough
10	An Analysis of the Highway Tax Structure in Oregon	C. B. McCullough John Beakey Paul Van Scoy
11	An Economic Analysis of Short-span Suspension Bridges for Modern Highway Loadings	C. B. McCullough G. S. Paxson D. R. Smith
12	Light-reflecting Characteristics of Pavement Surfaces	G. S. Paxson J. D. Everson
13	Rational Design Methods for Short-span Suspension Bridges for Modern Highway Loadings	C. B. McCullough G. S. Paxson D. R. Smith
14	The Derivation of Design Constants for Suspension Bridge Analysis	C. B. McCullough G. S. Paxson D. R. Smith

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* Senior Structural Engineer, Division of Tests, Bureau of Public Roads, Washington, D. C.

Technical Bulletin No.	*Title*	*Authors*
38–1	An Inventory of City Streets in Oregon	John Beakey Paul Van Scoy James J. Walton
38–1A	Addenda to an Inventory of City Streets in Oregon	John Beakey Paul Van Scoy James J. Walton
38–2	Rural Road Inventory of the State-wide Highway Planning Survey	John Beakey Paul Van Scoy James J. Walton
38–3	Motor Vehicle Allocation and Road Use Surveys of the State-wide Highway Planning Survey	John Beakey Paul Van Scoy Fred J. Myers
38–4	Fiscal Survey of the State-wide Highway Planning Survey	John Beakey Paul Van Scoy D. W. Keef
38–5	Rural Traffic Survey of the State-wide Highway Planning Survey	John Beakey B. Glenn Don Manning
38–5A	Annual Daily Traffic Density Tables of the Rural Traffic Survey, State-wide Highway Planning Survey	John Beakey B. Glenn Don Manning
38–6	Urban Traffic Survey, Parts I and II	John Beakey B. Glenn Don Manning
39–1	Data Supplementary to Interim Committee Report of January 1, 1937	John Beakey Fred J. Myers
39–2	A State-wide Survey of Aggregates	N. M. Finkbiner
39–3	Notes on the Application of Soil Mechanics to Highway Excavations and Embankments	G. S. Paxson D. R. Smith
39–4	Offset Tables for Vertical Curves	Hedda Swart
39–5	Skid-resistant Characteristics of Oregon Pavement Surfaces	John Beakey K. M. Klein W. J. Brown
39–6	Record of Road Costs and Earnings on the Oregon State Highway System for the Calendar Year 1937	S. H. Probert C. A. Bonnett
40–1	Traffic Density Tables for 1939	John Beakey Don Manning

Standard Specifications

In order that advantage may be taken of all recent advancements in highway and bridge construction practices, the Department has completely revised, during the biennium, its standard specifications for both highway construction and bridge construction. The standard specifications for bridge construction were issued in printed form on August 1, 1939. The printed edition of the standard specifications for highway construction followed under date of September 15, 1940.

ON McKENZIE HIGHWAY (US 28) EAST OF EUGENE

Section Three

FINANCIAL STATEMENTS

Covering the Fiscal Period
July 1, 1938, to June 30, 1940
AND

STATISTICAL INFORMATION

PERTAINING TO

State Highways and County Roads

IN THE

STATE OF OREGON

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Table No. 1

DETAILED SUMMARY OF INCOME AND EXPENDITURES

July 1, 1938, to June 30, 1940

INCOME

Classification	Receipts July 1, 1938, to June 30, 1939	Receipts July 1, 1939, to June 30, 1940	Total Receipts July 1, 1938, to June 30, 1940
State Funds:			
Balance on hand, July 1, 1938	$ 1,559,006.26	$	$ 1,559,006.26
Short-term bond sales	750,000.00		750,000.00
Motor vehicle license fees	2,584,484.53	3,157,114.97	5,741,599.50
Gasoline tax	9,131,353.47	11,544,039.08	20,675,392.55
Motor transportation fees	672,991.46	1,016,007.65	1,688,999.11
Interest and discounts		5,044.28	5,044.28
Fines for traffic law violations	21,615.08	27,387.04	49,002.12
Sub-totals, state funds	$14,719,450.80	$15,749,593.02	$30,469,043.82
County Funds:			
Cash remitted to state	$ 9,190.36	$ 9,000.00	$ 18,190.36
Sub-totals, county funds	$ 9,190.36	$ 9,000.00	$ 18,190.36
Federal Government Funds:			
Cash remitted to state	$ 2,983,770.73	$ 2,988,527.70	$ 5,972,298.43
Sub-totals, federal funds	$ 2,983,770.73	$ 2,988,527.70	$ 5,972,298.43
Miscellaneous Funds:			
Cash remitted to state	$ 25,000.00	$ 41,678.52	$ 66,678.52
Construction work paid for direct		1,500.00	1,500.00
Sub-totals, miscellaneous funds	$ 25,000.00	$ 43,178.52	$ 68,178.52
Grand total income	$17,737,411.89	$18,790,299.24	$36,527,711.13

Table No. 1—Continued

EXPENDITURES

Classification	Expended July 1, 1938, to June 30, 1939	Expended July 1, 1939, to June 30, 1940	Total Expended July 1, 1938, to June 30, 1940
Capital Outlays:			
Construction, primary highways	$ 3,582,482.11	$ 5,082,871.44	$ 8,665,353.55
Construction, secondary highways	657,560.71	706,360.20	1,363,920.91
Construction, county roads	368,898.20	374,208.68	743,106.88
Cooperation in forest road work	....	35,000.00	35,000.00
Minor betterments, primary	171,289.87	187,140.18	358,430.05
Minor betterments, secondary	97,805.76	102,894.32	200,700.08
Surveys and engineering county work	217,464.30	239,881.30	457,345.60
Real property negotiation field expense	46,107.85	37,690.18	83,798.03
Purchase of rights of way, quarries, etc.	570,584.37	565,287.20	1,135,871.57
Purchase of parks	91,841.33	79,558.65	171,399.98
Improvements in parks	11,953.75	14,416.83	26,370.58
Improvements at maintenance stations	80,722.64	61,329.56	142,052.20
Improvements on other properties	20,397.57	17,606.54	38,004.11
Equipment, purchases, less credits for sales and depreciation	72,666.49	89,539.34	162,205.83
Sub-totals, capital outlays	$ 5,989,774.95	$ 7,593,784.42	$13,583,559.37
Maintenance:			
Special maintenance, primary	$ 357,275.78	$ 229,574.57	$ 586,850.35
Special maintenance, secondary	42,919.29	58,816.04	101,735.33
General maintenance, primary	2,232,138.33	2,267,461.02	4,499,599.35
General maintenance, secondary	581,682.44	605,138.29	1,186,820.73
County road signing	19,846.72	13,311,36	33,158.08
District maintenance offices	112,580.44	110,867.97	223,448.41
Sub-totals, maintenance	$ 3,346,443.00	$ 3,285,169.25	$ 6,631,612.25
Operation:			
Administration and general supervision	$ 460,346.37	$ 443,063.57	$ 903,409.94
Planning and traffic surveys	80,390.12	58,906.95	139,297.07
Travel and information bureau	153,264.63	112,280.72	265,545.35
Operations of parks	28,069.85	40,855.27	68,925.12
Operation of maintenance stations	21,485.26	27,815.78	49,301.04
Drawbridges and ferries	41,991.74	46,513.81	88,505.55
Miscellaneous	126,531.38	60,970.57	187,501.95
Sub-totals, operation	$ 912,079.35	$ 790,406.67	$ 1,702,486.02
Service and clearing accounts	Cr.$123,168.26	$ 56,712.29	Cr. $66,455.97
Bond interest and maturities	3,574,116.75	2,730,059.21	6,304,175.96
Totals	$13,699,245.79	$14,456,131.84	$28,155,377.63

Table No. 2
SUMMARY OF EXPENDITURES
July 1, 1938, to June 30, 1940

Classification	Total Amount Expended	Cooperation in Expenditures			
		State	County	Federal Government	Miscellaneous Contributors
Construction, primary highways	$ 8,665,353.55	$ 3,958,008.82	$ 8,000.00	$ 4,643,633.21	$ 55,711.52
Construction, secondary highways	1,363,920.91	714,558.99	2,900.00	646,461.92	
Construction, county roads	743,106.88	264,309.75	7,290.36	459,039.77	12,467.00
Cooperation in forest road work	35,000.00	35,000.00			
Minor betterments, primary	358,430.05	358,430.05			
Minor betterments, secondary	200,700.08	200,700.08			
Surveys and engineering county work	457,345.60	457,345.60			
Real property negotiation field expense	83,798.03	83,798.03			
Purchase of rights of way, quarries, etc.	1,135,871.57	1,135,871.57			
Purchase of park	171,399.98	171,399.98			
Improvements in parks	26,370.58	26,370.58			
Improvements at maintenance stations	142,052.20	109,592.60		32,459.60	
Improvements of other properties	38,004.11	38,004.11			
Equipment, purchase, sales and depreciation	162,205.83	162,205.83			
Sub-totals, capital outlays	$13,583,559.37	$ 7,715,595.99	$ 18,190.36	$ 5,781,594.50	$ 68,178.52
Special maintenance, primary	$ 586,850.35	$ 486,311.12	$	$ 100,539.23	$
Special maintenance, secondary	101,735.33	87,849.04		13,886.29	
General maintenance, primary	4,499,599.35	4,499,599.35			
General maintenance, secondary	1,186,820.73	1,186,820.73			
County road signing	33,158.08	33,158.08			
District maintenance offices	223,448.41	223,448.41			
Sub-totals, maintenance	$ 6,631,612.25	$ 6,517,186.73	$	$ 114,425.52	$
Administration and general supervision	$ 903,409.94	$ 903,409.94	$	$	$
Planning and traffic surveys	139,297.07	63,018.66		76,278.41	
Travel and information bureau	265,545.35	265,545.35			
Operation of parks	68,925.12	68,925.12			
Operation of maintenance stations	49,301.04	49,301.04			
Drawbridges and ferries	88,505.55	88,505.55			
Miscellaneous	187,501.95	187,501.95			
Sub-totals, operation	$ 1,702,486.02	$ 1,626,207.61	$	$ 76,278.41	$
Service and clearing accounts	Cr. $66,455.97	Cr. $66,455.97	$	$	$
Bond interest and maturities	6,304,175.96	6,304,175.96			
Totals	$28,155,377.63	$22,096,710.32	$ 18,190.36	$ 5,972,298.43	$ 68,178.52

Table No. 3

MILEAGES OF HIGHWAY CONSTRUCTION WORK PERFORMED
by the
STATE HIGHWAY COMMISSION

New Construction

Year	Concrete Pavement (Miles)	Bituminous Pavement (Miles)	Bituminous Macadam (Miles)	Oiled Surfacing (Miles)	Rock and Gravel Surfacing (Miles)	Grading (Miles)	Bridges Over 20 Feet (No.)	Grade Separations (No.)
Primary Highways:								
1913-1935	235.4	551.5	776.7	1,998.1	2,745.0	3,145.3	908	28
1936	3.9	0.1	25.8	239.1	2.8	18.4	36	10
1937	6.1	0.8	79.9	100.3	18.2	38.8	18	6
1938	8.7	....	31.3	177.0	96.0	25.9	15	4
1939	1.4	....	....	210.0	79.5	9.3	8	2
1940	18.3	1.7	34.6	142.3	88.9	15.6	32	5
Totals	273.8	554.1	948.3	2,866.8	3,030.4	3,253.3	1,017	55
Secondary Highways:								
1933	1.4	....	....	....	12.7	15.8	13	....
1934	0.7	....	10.0	10.7	17.3	52.4	36	1
1935	0.6	0.8	1.9	23.3	37.1	43.1	11	....
1936	0.7	0.7	4.9	77.1	76.5	41.6	11	4
1937	....	....	....	95.6	26.8	7.2	2	2
1938	0.4	....	....	36.3	31.8	27.5	7	2
1939	0.2	....	....	137.3	61.6	44.0	3	....
1940	....	....	4.9	80.2	47.5	63.6	3	....
Totals	4.0	1.5	21.7	460.5	311.3	295.2	86	9
County Roads:								
1935	....	....	....	....	....	....	....	....
1936	1.2	12.9	5.9	61.3	32.0	34.3	1	2
1937	....	....	....	5.4	5.4	....	....	2
1938	0.1	....	1.5	42.1	33.4	11.4	1	....
1939	0.1	6.9	....	26.4	17.9	18.7	....	1
1940	0.5	....	....	24.5	32.7	24.0	1	....
Totals	1.9	19.8	7.4	159.7	121.4	88.4	3	5

Reconstruction (Primary Highways)

Year	Pavement Resurfacing and Widening (Miles)	Non-skid Treatment of Pavement (Miles)	Reconstruction of Oiled Surface (Miles)	Rock and Gravel Resurfacing (Miles)	Regrading and Widening (Miles)
1913-1935	185.0	412.3	....	985.9	837.6
1936	42.6	....	1.4	124.1	106.3
1937	54.8	....	13.7	146.7	103.4
1938	15.5	....	96.6	52.2	65.2
1939	3.1	....	107.5	114.9	87.1
1940	16.6	2.6	147.1	110.0	61.9
Totals	317.6	414.9	366.3	1,533.8	1,261.5

See previous reports for details covering years prior to 1936.

Table No. 4

MILEAGES OF STATE HIGHWAYS MAINTAINED BY THE STATE HIGHWAY COMMISSION

Year	Concrete Pavement	Bituminous Pavement	Bituminous Macadam	Oiled Rock Surfacing	Unoiled Rock Surfacing	Graded and Unimproved Earth	Total
Primary Highways:							
1937	286	581	1,082	1,694	715	233	4,591
1938	309	563	1,080	1,890	559	219	4,620
1939	307	561	1,103	2,084	450	175	4,680
1940	322	530	1,116	2,244	374	131	4,717
Secondary Highways:							
1937	43	115	14	485	949	586	2,192
1938	51	127	38	491	1,017	484	2,208
1939	51	128	63	613	982	389	2,226
1940	46	133	42	727	915	445	2,308

See previous reports for details covering years prior to 1937.

Table No. 5

STATE FUNDS RECEIVED AND EXPENDED BY THE STATE HIGHWAY COMMISSION

Years 1917 to 1940

Year	Net Receipts (State Funds Only)	Net Expenditures (State Funds Only)
1917 (Including $94,418.14 balance from 1916)	$ 1,802,190.22	$ 674,249.61
1918	1,759,600.15	2,214,007.87
1919	7,458,614.05	6,248,304.16
1920	11,320,354.05	11,381,606.97
1921	13,550,136.40	15,000,824.65
1922	9,608,966.45	7,724,688.96
1923	7,664,977.79	7,287,991.77
1924	6,115,536.48	6,916,867.91
1925	*10,231,908.30	†10,611,283.45
1926	7,345,080.19	7,927,130.75
1927	8,627,279.00	8,474,609.91
1928	8,721,396.09	8,975,204.79
1929	10,658,473.58	10,160,542.57
1930	13,897,663.65	12,808,014.45
1931	10,930,545.38	11,108,835.57
1932	*9,925,665.72	†10,812,369.81
1933	*7,804,925.99	7,860,497.50
1934	8,798,396.81	7,517,063.41
1935	*14,469,922.86	†13,687,022.82
1936	10,943,742.46	13,194,698.50
1937	*11,996,069.07	†12,595,127.42
1938	*11,418,916.44	†11,261,453.70
1939	11,821,364.62	11,154,493.37
1940 (to June 30)	7,212,179.65	4,979,002.94
Totals	$224,083,905.40	$220,575,892.86
Balance on hand July 1, 1940		‡3,508,012.54
Totals		$224,083,905.40

---

* Includes $3,011,805 received from sale of refunding bonds in 1925, $1,001,318.86 from sale of short-term bonds in 1932, $1,460,686.71 from sale of short-term bonds in 1933, $2,893,283.86 from sale of refunding bonds in 1935, $1,000,000 from sale of short-term bonds in 1937, and $750,000 from sale of short-term bonds in 1938.

† Includes $3,000,000 used to refund short-term bonds in 1925, $1,000,000 to retire short-term bonds in 1932, $500,000 in 1937, $1,250,000 in 1938, and $3,500,000 to retire Oregon Coast Bridge bonds in 1935, and $700,000 in 1936.

‡ Includes $200,000 in pay roll revolving fund.

Table No. 6

YEARLY EXPENDITURES ON WORK HANDLED UNDER THE SUPERVISION OF THE STATE HIGHWAY COMMISSION

Years 1917 to 1940

Year	State Funds	County Funds	Government Funds	Miscellaneous Contributor's Funds	Totals
1917	$ 674,249.61	$ 270,162.37	$	$	$ 944,411.98
1918	2,214,007.87	439,562.42			2,653,570.29
1919	6,248,304.16	368,550.01	224,851.60		6,841,705.77
1920	11,381,606.97	868,539.59	1,096,027.33	17,661.62	13,363,835.51
1921	15,000,824.65	985,831.42	2,181,956.65	46,378.16	18,214,990.88
1922	7,724,688.96	3,814,402.13	1,043,695.07	33,341.49	12,616,127.65
1923	7,287,991.77	2,199,707.40	1,719,088.71	129,634.73	11,336,422.61
1924	6,916,867.91	1,586,176.49	1,118,777.53	94,241.61	9,716,063.54
1925	10,611,283.45	1,327,243.26	1,327,328.92	62,500.74	13,328,356.37
1926	7,927,130.75	715,701.37	1,264,688.74	78,916.59	9,986,437.45
1927	8,474,609.91	618,679.22	1,111,521.64	58,632.08	10,263,442.85
1928	8,975,204.79	683,625.95	582,440.20	26,973.39	10,268,244.33
1929	10,160,542.57	532,907.15	624,415.28	9,969.29	11,327,834.29
1930	12,808,014.45	280,829.24	1,565,288.34	13,804.57	14,667,936.60
1931	11,108,835.57	256,811.39	4,535,069.46		15,900,716.42
1932	10,812,369.81	165,499.67	1,703,369.15	63,251.92	12,744,490.55
1933	7,860,497.50	168,028.79	2,723,724.39	26,912.05	10,779,162.73
1934	7,517,063.41	174,720.24	6,023,993.01	3,522.50	13,719,299.16
1935	13,687,022.82	133,562.57	4,165,503.33	10,000.00	17,996,088.72
1936	13,194,698.50	129,233.41	6,375,343.26	8,773.61	19,708,048.78
1937	12,595,127.42	80,174.48	4,589,894.89	62,146.90	17,327,343.69
1938	11,261,453.70	186,284.48	2,873,801.64	25,000.00	14,346,539.82
1939	11,154,493.37	9,480.34	2,652,475.77	12,202.46	13,828,651.94
1940 (to June 30)	4,979,002.94		1,357,096.66	30,976.06	6,367,075.66
Totals	$220,575,892.86	$15,995,713.39	$50,860,351.57	$814,839.77	$288,246,797.59

Table No. 7

SUMMARY OF EXPENDITURES BY MAJOR ITEMS

Years 1917 to June 30, 1940, Inclusive

Classification of Expenditures	Total Amount Expended	Cooperation in Expenditures			
		State	County	Government	Miscellaneous Contributors
CAPITAL OUTLAYS					
Contract construction	$144,589,242.91	$ 78,069,027.19	$15,144,704.56	$50,341,925.92	$ 1,033,585.24
Cooperation in forest road work	5,820,003.86	5,325,653.49	494,350.37		
Minor betterments	6,243,009.57	6,233,736.83	5,272.74	4,000.00	
Surveys	3,654,165.83	3,618,093.62	15,672.21	20,400.00	
Sub-totals, construction	$160,306,422.17	$ 93,246,511.13	$15,659,999.88	$50,366,325.92	$ 1,033,585.24
Rights of way, quarries, etc.	4,005,047.76	3,995,138.01	9,909.75		
Parks	696,492.03	696,492.03			
Buildings and improvements (except parks)	448,749.91	416,290.31		32,459.60	
Equipment (subsequent to 1934 only)	425,563.76	425,563.76			
Sub-totals, capital outlays (including construction)	$165,882,275.63	$ 98,779,995.24	$15,669,909.63	$50,398,785.52	$ 1,033,585.24
MAINTENANCE					
Special maintenance	$ 6,158,007.45	$ 5,979,405.70	$ 2,516.17	$ 175,972.89	$ 112.69
General maintenance	39,942,861.79	39,849,891.64	85,848.05	5,340.23	1,781.87
Sub-totals, maintenance	$ 46,100,869.24	$ 45,829,297.34	$ 88,364.22	$ 181,313.12	$ 1,894.56
MISCELLANEOUS					
Administration and general supervision	$ 5,511,933.87	$ 5,511,933.87	$	$	$
Miscellaneous operations	3,822,409.90	3,525,357.46	16,799.51	280,252.93	
Bond interest and maturities	66,929,308.95	66.929,308.95			
Sub-totals, miscellaneous	$ 76,263,652.72	$ 75,966,600.28	$ 16,799.51	$ 280,252.93	$
Totals	$288,246,797.59	$220,575,892.86	$15,775,073.36	$50,860,351.57	$ 1,035,479.80

For a summary of expenditures in detail see page 161.

Table No. 8
SUMMARY OF EXPENDITURES
Years 1917 to June 30, 1940, Inclusive

Classification of Expenditures	Total Amount Expended	Cooperation in Expenditures			
		State	County	Government	Miscellaneous Contributors
Construction, primary highways	$132,498,809.08	$ 72,051,343.67	$14,559,943.44	$44,870,018.30	$ 1,017,503.67
Construction, secondary highways	8,426,337.72	4,388,637.25	279,222.21	3,757,822.92	655.34
Construction, county roads	3,664,096.11	1,629,046.27	305,538.91	1,714,084.70	15,426.23
Cooperation in forest road work	5,820,003.86	5,325,653.49	494,350.37		
Minor betterments, primary	5,615,614.69	5,607,116.13	4,498 56	4,000.00	
Minor betterments, secondary	627,394.88	626,620.70	774.18		
Surveys and engineering county work	3,654,165.83	3,618,093.62	15,672 21	20,400.00	
Sub-totals, construction	$160,306,422.17	$ 93,246,511.13	$15,659,999.88	$50,366,325.92	$ 1,033,585.24
Real property negotiation field expense	$ 272,795.97	$ 272,795.97	$	$	$
Purchase of rights of way, quarries, etc.	3,732,251.79	3,722,342.04	9,909.75		
Purchase of parks	505,454.27	505,454.27			
Improvements in parks	191,037.76	191,037.76			
Improvements at maintenance stations	435,191.10	402,731.50		32,459.60	
Improvements of other properties	13,558.81	13,558.81			
Equipment, purchase, sales and depreciation	425,563.76	425,563.76			
Sub-totals, capital outlays (including construction)	$165,882,275.63	$ 98,779,995.24	$15,669,909.63	$50,398,785.52	$ 1,033,585.24
Special, maintenance, primary	$ 5,829,571.29	$ 5,666,843.13	$ 528.87	$ 162,086.60	$ 112.69
Special maintenance, secondary	328,436.16	312,562.57	1,987.30	13,886.29	
General maintenance, primary	33,833,920.46	33,741,333.45	85,464.91	5,340.23	1,781.87
General maintenance, secondary	4,430,588.80	4,430,205.66	383.14		
County road signing, etc.	54,483.36	54,483.36			
District maintenance offices	1,623,869.17	1,623,869.17			
Sub-totals, maintenance	$ 46,100,869.24	$ 45,829,297.34	$ 88,364.22	$ 181,313.12	$ 1,894.56
Administration and general supervision	$ 5,511,933.87	$ 5,511,933.87	$	$	$
Planning and traffic surveys	633,139.10	352,886.17		280,252.93	
Travel and information bureau	498,542.32	498,542.32			
Operation of parks	168,623.48	168,623.48			
Operation of maintenance stations	135,310.49	135,310.49			
Operation of drawbridges and ferries	986,511.00	969,711.49	16,799.51		
Service and clearing accounts	Cr. 231,356.47	Cr. 231,356.47			
Miscellaneous	1,631,639.98	1,631,639.98			
Sub-totals, operation	$ 9,334,343.77	$ 9,037,291.33	$ 16,799.51	$ 280,252.93	$
Bond interest and maturities	66,929,308.95	66,929,308.95			
Totals	$288,246,797.59	$220,575,892.86	$15,775,073.36	$50,860,351.57	$ 1,035,479.80

Table No. 9

SCHEDULE OF YEARLY INCOMES FROM DIFFERENT SOURCES

Years 1917 to 1940, Inclusive

Source of Income	1917 to 1933 Inclusive	1934	1935	1936	1937
Balance on hand, December 1, 1916	$ 94,418.14	$	$	$	$
Bond sales (including accrued interest)	45,698,103.01	1,016,000.00	5,413,817.03	700,000.00	1,000,000.00
Motor vehicle license fees	50,617,642.29	1,876,039.76	2,419,379.29	2,436,752.57	2,904,902.16
Gasoline and distillate tax	49,176,483.90	7,165,967.51	7,817,198.85	9,115,192.59	9,780,984.83
Motor transportation fees	1,381,205.69	603,032.66	678,609.13	790,500.62	604,801.20
One-quarter mill tax	1,724,032.33				
Interest on bank balances, discounts, etc.	542,824.23	357.34	576.53	322.06	659.87
Fines for traffic law violations	219,056.42	17,452.02	17,924.88	26,505.29	31,785.99
Transfer to increase revolving fund					75,000.00
Sub-totals of state funds (gross)	$149,453,766.01	$10,678,849.29	$16,347,505.71	$13,069,273.13	$14,398,134.05
Less contributions to state police	$ 430,452.52	$ 280,452.48	$ 277,582.85	$ 287,751.00	$ 326,741.28
Less contributions to counties	1,600,000.00	1,600,000.00	1,600,000.00	1,600,000.00	2,000,000.00
Less contributions to state general fund				237,779.67	75,323.70
Sub-totals of state funds (net)	$147,423,313.49	$ 8,798,396.81	$14,469,922.86	$10,943,742.46	$11,996,069.07
County cooperation	$ 15,282,257.87	$ 174,720.24	$ 133,562.57	$ 129,233.41	$ 80,174.48
Federal Government cooperation	22,822,243.01	6,023,993.01	4,165,503.33	6,375,343.26	4,589,894.89
Miscellaneous cooperation	662,218.24	3,522.50	10,000.00	8,773.61	62,146.90
Totals	$186,190,032.61	$15,000,632.56	$18,778,988.76	$17,457,092.74	$16,728,285.34

Table No. 9—Continued

SCHEDULE OF YEARLY INCOMES FROM DIFFERENT SOURCES

Years 1917 to June 30, 1940, Inclusive

Source of Income	1917 to 1937 Inclusive	1938	1939	1940 (to June 30)	Dec 1, 1916 to June 30 1940
Balance on hand, December 1, 1916	$ 94,418.14	$	$	$	$ 94,418.14
Bond sales (including accrued interest)	53,827,920.04	750,000.00			51,577,920.04
Motor vehicle license fees	60,254,716.07	2,521,844.16	2,959,667.67	2,358,931.18	68,095,159.08
Gasoline and distillate tax	83,055,827.68	9,769,732.13	10,271,167.85	4,738,661.90	7,835,389.56
Motor transportation fees	4,058,149.30	827,332.15	921,472.76	506,174.76	6,313,128.97
One-quarter mill tax	1,724,032.33				1,724,032.33
Interest on bank balances, discounts, etc.	544,740.03	7.95	.61	5,043.67	549,792.26
Fines for traffic law violations	312,724.60	23,627.68	23,657.50	14,157.33	374,167.11
Transfer to increase revolving fund	75,000.00		50,000.00		125,000.00
Sub-totals of state funds (gross)	$203,947,528.19	$13,892,544.07	$14,225,966.39	$ 7,622,968.84	$239,689,007.49
Less contributions to state police	$ 1,602,980.13	$ 347,860.00	$ 340,133.75	$ 176,112.50	$ 2,467,086.38
Less contributions to counties	8,400,000.00	2,125,767.63	2,064,468.02	234,676.69	12,824,912.34
Less contributions to state general fund	313,103.37				313,103.37
Sub-totals of state funds (net)	$193,631,444.69	$11,418,916.44	$11,821,364.62	$ 7,212,179.65	$224,083.905.40
County cooperation	$ 15,799,948.57	$ 186,284.48	$ 9,480.34	$	$ 15,995,713.39
Federal Government cooperation	43,976,977.50	2,873,801.64	2,652,475.77	1,357,096.66	50,860,351.57
Miscellaneous cooperation	746,661.25	25,000.00	12,202.46	30,976.06	814,839.77
Totals	$254,155,032.01	$14,504,002.56	$14,495,523.19	$ 8,600,252.37	$291,754,810.13

Table No. 10

SCHEDULE OF YEARLY EXPENDITURES

Years 1917 to 1940, Inclusive

The expenditures in this table include all expenditures in connection with work handled under the direct supervision of the State Highway Commission during the period December 1, 1916, to June 30, 1940.

Classification of Expenditures	1917 to 1934 Inclusive	1935	1936	1937	1938
Construction, primary highways	$104,126,277.17	$ 6,194,125.48	$ 7,736,813.95	$ 6,574,562.37	$ 3,704,848.16
Construction, secondary highways	2,374,521.02	959,004.69	1,726,000.20	593,672.40	527,058.56
Construction, county roads	522,214.12	280,904.41	1,074,075.20	86,967.63	293,644.26
Cooperation in forest road work	5,440,002.21	52,501.65	205,000.00	112,500.00	Cr. 25,000.00
Minor betterments, primary	4,727,684.21	154,912.76	206,482.86	198,934.90	151,203.32
Minor betterments, secondary	74,946.71	43,340.41	79,295.29	117,848.69	98,236.34
Surveys and engineering county work	2,353,402.76	211,109.86	215,504.64	274,916.25	252,379.65
Sub-totals, construction	$219,619,048.20	$ 7,895,899.26	$11,243,172.14	$ 7,959,402.24	$ 5,002,370.29
Real property negotiation field expense	$ 69,662.59	$ 26,407.43	$ 31,353.07	$ 40,595.44	$ 44,201.38
Purchase of rights of way, quarries, etc.	937,773.91	133,800.24	699,639.85	586,103.69	587,088.05
Purchase of parks	212,978.83	17,526.78	59,188.65	15,755.70	76,640.86
Improvements in parks	135,430.24	7,381.56	8,074.66	6,911.93	13,219.77
Improvements at maintenance stations	162,099.38	22,638.95	49,079.99	32,676.70	57,785.77
Improvements of other properties	3,135.38	20.31	....	....	2,001.84
Equipment, purchase, sales and depreciation	*....................	8,784.50	77,128.03	227,783.42	Cr. 47,325.75
Sub-totals, capital outlays (including construction)	$221,140,128.53	$ 8,112,459.03	$12,167,636.39	$ 8,869,229.12	$ 5,735,982.21

Special maintenance, primary	$ 4,564,565.38	$ 155,456.07	$ 238,185.58	$ 306,463.74	$ 324,138.11
Special maintenance, secondary	....	....	....	18,929.40	42,559.88
General maintenance, primary	22,446,971.49	1,775,736.07	2,043,248.69	2,547,357.41	2,304,398.51
General maintenance, secondary	915,041.38	412,595.40	454,331.21	614,014.15	606,856.57
County road signing	....	....	....	....	20,318.73
District maintenance offices	1,015,751.65	117,608.39	96,160.32	113,911.95	114,994.93
Sub-totals, maintenance	$ 28,942,329.90	$ 2,461,395.93	$ 2,831,925.80	$ 3,600,676.65	$ 3,413,266.73
Administration and general supervision	$ 3,400,924.58	$ 290,676.96	$ 333,610.62	$ 378,118.95	$ 444,471.33
Planning and traffic surveys	....	....	152,570.82	253,755.24	137,778.47
Travel and information bureau	....	7,197.13	49,202.52	98,703.90	115,603.04
Operation of parks	49,225.08	3,454.37	12,626.63	22,786.41	27,844.52
Operation of maintenance stations	52,019.67	6,767.81	8,831.60	13,130.09	10,481.59
Operation of drawbridges and ferries	588,428.23	149,191.20	102,313.84	40,633.34	40,615.01
Service and clearing accounts	Cr. 214,107.77	Cr. 26,874.90	Cr. 78,514.14	86,678.09	Cr. 79,136.07
Miscellaneous	1.070.315.14	88.168.96	87,806.01	179,403.84	71,868.72
Sub-totals, operation	$ 4,946,804.93	$ 518,581.53	$ 668,447.90	$ 1,073,209.86	$ 769,526.61
Bond interest and maturities	$ 43,643,785.62	$ 6,903,652.23	$ 4,040,038.69	$ 3,784,228.06	$ 4,427,764.27
Totals	$198,673,048.98	$17,996,088.72	$19,708,048.78	$17,327,343.69	$14,346,539.82

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* No record of expenditures under this classification prior to 1935.

Table No. 10—Continued

SCHEDULE OF YEARLY EXPENDITURES

Years 1917 to 1940, Inclusive

Classification of Expenditures	1917 to 1938 Inclusive	1939	1940 (to June 30)	Reclassification Transfers	1917 to 1940 Inclusive
Construction, primary highways	$128,336,627.13	$ 4,263,296.38	$ 1,926,145.51	Cr.$2,027,259.94	$132,498,809.08
Construction, secondary highways	6,180,256.87	830,342.17	202,568.64	1,213,170.04	8,426,337.72
Construction, county roads	2,257,805.62	482,112.38	110,088.21	814,089.90	3,664,096.11
Cooperation in forest road work	5,785,003.86	35,000.00	....	....	5,820,003.86
Minor betterments, primary	5,439,218.05	187.233 39	70,383.32	Cr. 81,220.07	5,615.614.69
Minor betterments, secondary	413,667.44	102,307.29	30,141.08	81,279.07	627,394.88
Surveys and engineering county work	3,307,313.16	213,773.39	133,079.28	....	3,654,165.83
Sub-totals, construction	$151,719,892.13	$ 6,114,065.00	$ 2,472,406.04	$ 59.00	$160,306,422.17
Real property negotiation field expense	$ 212,219.91	$ 45,782.90	$ 14,793.16	$	$ 272,795.97
Purchase of rights of way, quarries, etc.	2,944,405.74	544,666.68	243,179.37	....	3,732,251.79
Purchase of parks	382,090.82	72,685.98	50,677.47	....	505,454.27
Improvements in parks	171,018.16	11,199.14	8,820.46	....	191,037.76
Improvements at maintenance stations	324,280.79	82,587.83	28,322.48	....	435,191.10
Improvements of other properties	5,157.53	1,341.84	7,059.44	....	13,558.81
Equipment purchases, sales and depreciation	266,370.20	47,898.36	111,295.20	....	*425,563.76
Sub-totals, capital outlays (including construction)	$156,025,435.28	$ 6,920,227.73	$ 2,936,553.62	$	$165,882,275.63

Special maintenance, primary	$ 5,588,808.88	$ 270,804.59	$ 154,198.87	Cr. $184,241.05	$ 5,829,571.29
Special maintenance, secondary	61,489.28	55,957.71	26,748.12	184,241.05	328,436.16
General maintenance, primary	31,117,712.17	2,296,980.98	952,062.42	Cr. 532,835.11	33,833,920.46
General maintenance, secondary	3,002,838.71	584,307.02	319,703.00	523,740.07	4,430,588.80
County road signing	20,318.73	19,796.37	5,332.22	9,036.04	54,483.36
District maintenance offices	1,458,427.24	110,409.11	55,032.82	....	1,623,869.17
Sub-totals, maintenance	$ 41,249,595.01	$ 3,338,255.78	$ 1,513,077.45	Cr. $59.00	$ 46,100,869.24
Administration and general supervision	$ 4,847,802.44	$ 439,553.42	$ 224,578.01	$	$ 5,511,933.87
Planning and traffic surveys	544,104.53	60,637.46	28,397.11	....	633,139.10
Travel and information bureau	270,706.59	145,974.22	81,861.51	....	498,542.32
Operation of parks	115,937.01	35,139.94	17,546.53	....	168,623.48
Operation of maintenance stations, etc.	91,230.76	26,036.68	18,043.05	....	135,310.49
Operation of drawbridges and ferries	921,181.62	43,966.13	21,363.25	....	986,511.00
Service and clearing accounts	Cr. 311,954.79	Cr. 67,655.96	148,254.28	....	Cr. 231,356.47
Miscellaneous	1,497,562.67	110,122.31	23,955.00	....	1,631,639.98
Sub-totals, operation	$ 7,976,570.83	$ 793,774.20	$ 563,998.74	$	$ 9,334,343.77
Bond interest and maturities	$ 62.799.468.87	$ 2.776.394.23	$ 1,353,445.85	$	$ 66,929,308.95
Totals	$268,051,069.99	$13,828,651.94	$ 6,367,075.66	$	$288,246,797.59

* No record of expenditures under this classification prior to 1935.

Table No. 11

EXPENDITURES FOR PRIMARY HIGHWAY CONSTRUCTION WORK SUMMARIZED BY HIGHWAYS

Years 1917 to 1940, Inclusive

This table gives the totals of the expenditures made for construction work in each of the several counties during the 24-year period ending June 30, 1940. It includes expenditures for new construction, additions and betterments, surveys and the engineering of county construction. It includes also state expenditures in connection with forest highway work. It does not include expenditures for maintenance work, secondary highways, county roads, or the expenditures of the federal government and counties in connection with forest highway construction work.

Hwy. No.	Highway	Total Amount Expended	Cooperation in Expenditures			
			By State	By County	By Federal Government	By Miscellaneous Contributors
1	Pacific, Jct. City-South	$ 15,042,302.70	$ 10,903,656.94	$ 478,720.75	$ 3,526,289.18	$ 133,635.83
1E	Pacific, East	9,109,441.88	4,067,001.60	308,294.09	4,599,902.67	134,243.52
1W	Pacific, West	6,820,051.96	3,940,344.51	378,003.88	2,481,625.07	20,078.50
2	Columbia River	15,017,042.13	10,789,166.12	234,159.44	3,852,499.06	141,217.51
3	Oswego	932,885.31	612,975.49	168,309.82	114,100.00	37,500.00
4	The Dalles-California	6,048,451.91	2,300,856.46	1,113,270.34	2,604,320.19	30,004.92
5	John Day	5,290,978.71	2,677,360.90	599,304.42	2,012,313.39	2,000.00
6	Old Oregon Trail	9,320,854.79	4,634,614.36	714,684.47	3,734,724.21	236,831.75
7	Central Oregon	3,900,120.08	2,182,680.52	154,287.80	1,563,151.76	
8	Oregon-Washington	1,381,111.41	1,121,714.80	122,649.31	136,747.30	
9	Oregon Coast	23,800,238.03	14,417,726.86	2,044,814.63	7,296,332.03	41,364.51
10	Wallowa Lake	2,134,252.80	1,023,070.84	534,380.21	571,721.75	5,080.00
11	Enterprise-Lewiston	373,599.50	301,978.01	71,621.49		
12	Baker-Homestead	1,176,425.22	450,783.68	508,976.18	161,887.18	54,778.18
13	Baker-Unity	767,664.23	425,151.24	331,113.14	11,399.85	
14	Crooked River	449,780.72	351,279.74	98,500.98		
15	McKenzie	2,042,529.23	981,385.66	427,755.02	618,179.76	15,208.79
16	Santiam	1,554,544.51	852,706.20	232,885.28	429,288.79	39,664.24
17	McKenzie-Bend	90,007.97	84,498.77	5,509.20		
18	Willamette	1,606,013.54	686,739.11	311,897.95	607,376.48	
19	Fremont	1,853,871.01	841,765.95	190,273.36	821,831.70	
20	Klamath Falls-Lakeview	2,150,459.80	1,493,228.52	265,269.22	390,639.65	1,322.41
21	Green Springs	2,094,148.70	1,070,969.28	557,877.85	438,529.42	26,772.15
22	Crater Lake	1,726,664.78	1,221,966.21	188,000.00	316,698.57	
23	Dairy-Bonanza	121,743.47	86,879.67	34,863.80		
24	Burns-Crane	370,913.90	166,751.69	48,156.79	156,005.42	
25	Redwood	958,926.17	627,288.40	54,507.82	277,129.95	

Table No. 11—Continued

Hwy. No.	Highway	Total Amount Expended	Cooperation in Expenditures			
			By State	By County	By Federal Government	By Miscellaneous Contributors
26	Mt. Hood	$ 2,382,537.26	$ 1,062,477.55	$ 505,287.08	$ 214,772.63	$
27	Alsea	1,324,291.20	995,189.24	278,757.08	50,344.88	
28	Pendleton-John Day	1,644,123.64	817,957.14	162,236.66	663,677.41	252.43
29	Tualatin Valley	2,083,107.70	1,437,401.75	177,813.38	455,193.64	12,698.93
30	Salem-Dallas	988,438.72	463,780.59	295,472.12	229,186.01	
31	Albany-Corvallis	580,065.06	113,286.63	130,101.15	299,593.00	37,084.28
32	Three Rivers	596,640.37	516,349.94	21,646.19	58,644.24	
33	Corvallis-Newport	1,719,353.17	1,174,390.21	266,629.35	269,713.35	8,620.26
34	Siuslaw	1,613,710.31	1,094,056.35	476,293.56	43,360.40	
35	Coos Bay-Roseburg	1,893,496.84	984,883.43	649,440.43	243,072.98	16,100.00
36	Pendleton-Cold Springs	437,034.76	165,561.50	191,239.44	80,233.82	
37	Wilson River	1,251,031.34	757,121.67		493,909.67	
38	Oregon Caves	474,591.21	460,591.21	14,000.00		
39	Salmon River	1,219,976.89	1,029,468.84	58,106.99	132,401.06	
40	Beaverton-Hillsdale	275,365.55	138,112.58	61,252.97	76,000.00	
41	Ochoco	2,104,401.30	1,200,138.08	173,593.13	728,170.09	2,500.00
42	Sherman	1,161,652.66	352,146.02	360,879.73	446,879.12	1,747.79
43	Monmouth-Independence	69,004.69	69,004.69			
44	Wapinitia	779,411.73	487,911.71		291,500.02	
45	Umpqua	1,638,356.01	299,500.46	366,174.97	972,680.58	
46	Necanicum	648,480.95	361,509.34	148,986.77	137,984.84	
47	Wolf Creek	3,123,209.24	1,428,470.08	92,000.00	1,602,739.16	
48	John Day-Burns	14,631.56	14,631.56			
49	Lakeview-Burns	459,075.57	211,030.86	31,604.06	216,440.65	
50	Klamath Falls-Malin	694,794.90	416,978.81	83,177.88	177,600.37	17,037.84
51	West Portland-Hubbard	364,229.45	122,274.45		241,955.00	
52	Heppner	1,203,252.93	886,426.75	315,066.35		1,759.83
	Undistributed	715,108.53	373,974.74	35,608.86	305,524.93	
	Totals	$147,594,398.00	$ 86,349,167.71	$15,073,455.39	$45,154,271.23	$ 1,017,503.67
	Primary maintenance	$ 41,738,268.90	$ 41,466,154.22	$ 102,793.29	$ 167,426.83	$ 1,894.56
	Secondary construction	9,494,335.56	5,434,451.72	281,005.58	3,778,222.92	655.34
	Secondary maintenance	5,018,185.25	5,001,928.52	2,370.44	13,886.29	
	County road construction	3,893,332.43	1,858,282.59	305,538.91	1,714,084.70	15,426.23
	County road maintenance	109,444.28	109,444.28			
	General purposes	80,398,833.17	80,356,463.82	9,909.75	32,459.60	
	Grand totals	$288,246,797.59	$220,575,892.86	$15,775,073.36	$50,860,351.57	$ 1,035,479.80

Table No. 12

EXPENDITURES FOR PRIMARY HIGHWAY MAINTENANCE WORK SUMMARIZED BY HIGHWAYS

Years 1917 to 1940, Inclusive

Kinds of expenditures included are same as included in table No. 14

Hwy. No.	Highway	Total Amount Expended	Cooperation in Expenditures			
			By State	By County	By Federal Government	By Miscellaneous Contributors
1	Pacific, Jct. City-South	$ 1,988,026.43	$ 1,975,738.34	$ 12,288.09	$	$
1E	Pacific, East	1,293,904.07	1,290,989.89	2,914.18		
1W	Pacific, West	775,574.15	769,376.22	6,197.93		
2	Columbia River	3,784,597.20	3,770,275.44	12,556.40	870.80	894.56
3	Oswego	101,041.88	101,041.88			
4	The Dalles-California	2,899,279.32	2,885,448.04	769.57	13,061.71	
5	John Day	1,816,223.87	1,811,165.88	5,057.99		
6	Old Oregon Trail	3,895,958.11	3,852,073.82	1,270.87	42,613.42	
7	Central Oregon	686,935.83	683,220.06	15.45	3,700.32	
8	Oregon-Washington	404,801.40	399,449.94	5,351.46		
9	Oregon Coast	4,999,886.99	4,946,754.21	21,301.18	30,831.60	1,000.00
10	Wallowa Lake	1,161,274.14	1,161,274.14			
11	Enterprise-Lewiston	125,150.59	125,150.59			
12	Baker-Homestead	322,448.02	321,658.24	789.78		
13	Baker-Unity	221,200.26	221,200.26			
14	Crooked River	78,314.04	78,314.04			
15	McKenzie	874,584.83	863,285.32		11,299.51	
16	Santiam	445,590.86	438,046.69		7,544.17	
17	McKenzie-Bend	155,882.77	152,226.87		3,655.90	
18	Willamette	179,527.49	179,527.49			
19	Fremont	539,627.62	526,610.35		13,017.27	
20	Klamath Falls-Lakeview	661,087.33	659,437.91		1,649.42	
21	Green Springs	951,335.68	951,134.91	200.77		
22	Crater Lake	735,054.74	734,712.07		342.67	
23	Dairy-Bonanza	48,238.41	48,238.41			
24	Burns-Crane	94,897.65	94,801.18	96.47		
25	Redwood	312,576.49	312,576.49			
26	Mt. Hood	1,197,007.12	1,190,886.44		6,120.68	
27	Alsea	547,333.58	547,333.58			
28	Pendleton-John Day	497,757.55	497,757.55			
29	Tualatin Valley	312,143.80	302,150.59	9,993.21		
30	Salem-Dallas	210,655.07	210,602.12	52.95		
31	Albany-Corvallis	52,891.21	52,091.21	800.00		
32	Three Rivers	762,288.17	745,350.72	16,937.45		
33	Corvallis-Newport	943,322.80	940,732.01	320.50	2,270.29	
34	Siuslaw	571,090.82	559,598.51		11,492.31	
35	Coos Bay-Roseburg	1,455,093.98	1,444,197.70	3,838.17	7,058.11	
36	Pendleton-Cold Springs	104,770.42	104,770.42			
37	Wilson River	48,402.83	48,402.83			
38	Oregon Caves	89,686.95	89,686.95			
39	Salmon River	536,385.32	536,084.40	300.92		
40	Beaverton-Hillsdale	39,015.98	37,276.03	1,739.95		
41	Ochoco	618,117.62	618,117.62			
42	Sherman	489,021.01	481,713.85		7,307.16	
43	Monmouth-Independence	20,602.08	20,602.08			
44	Wapinitia	267,741.82	267,741.82			
45	Umpqua	274,633.24	274,633.24			
46	Necanicum	373,867.00	373,867.00			
47	Wolf Creek	317,389.82	317,389.82			
48	John Day-Burns	148,239.93	148,239.93			
49	Lakeview-Burns	140,999.59	140,999.59			
50	Klamath Falls-Malin	342,716.88	342,716.88			
51	West Portland-Hubbard	1,172.91	1,172.91			
52	Heppner	463,755.51	459,164.02		4,591.49	
	Undistributed expense	1,359,145.72	1,359,145.72			
	Totals	$41,738,268.90	$41,466,154.22	$102,793.29	$167,426.83	$ 1,894.56

Table No. 13

EXPENDITURES FOR PRIMARY HIGHWAY CONSTRUCTION WORK SUMMARIZED BY COUNTIES

Years 1917 to 1940, Inclusive

Kinds of expenditures included are same as included in table No. 11

County	Total Amount Expended	Cooperation in Expenditures			
		By State	By County	By Federal Government	By Miscellaneous Contributors
Baker	$ 5,267,685.08	$ 2,463,351.26	$ 1,015,924.69	$ 1,699,422.34	$ 88,986.79
Benton	2,824,355.72	1,979,957.25	372,439.94	463,338.27	8,620.26
Clackamas	5,306,722.21	2,845,750.66	459,842.49	1,861,122.00	140,007.06
Clatsop	6,945,664.28	3,828,590.50	448,340.54	2,668,733.24	----------
Columbia	2,555,176.79	2,234,586.34	12,060.23	306,827.59	1,702.63
Coos	6,220,651.80	3,838,005.48	821,548.46	1,535,423.59	25,674.27
Crook	1,302,815.54	836,820.54	198,071.21	265,423.79	2,500.00
Curry	4,696,792.75	3,161,340.41	227,542.72	1,307,909.62	----------
Deschutes	2,530,483.84	1,313,096.62	152,817.14	1,044,616.62	19,953.46
Douglas	11,465,111.71	7,379,712.85	1,213,134.95	2,837,795.39	34,468.52
Gilliam	2,276,741.97	1,451,444.63	266,278.07	557,019.27	2,000.00
Grant	2,906,053.36	1,408,140.27	188,600.65	1,309,312.44	----------
Harney	2,265,420.43	892,881.74	128,701.27	1,243,837.42	----------
Hood River	2,795,465.07	2,374,265.13	283,001.46	109,986.96	28,211.52
Jackson	6,545,803.52	3,841,763.82	533,952.88	2,126,664.64	43,422.18
Jefferson	670,574.42	381,384.87	138,482.18	149,967.37	740.00
Josephine	3,537,769.99	2,943,950.94	110,077.78	483,741.27	----------
Klamath	6,424,076.54	3,136,008.11	782,426.92	2,471,110.17	34,531.34
Lake	2,657,057.04	1,384,316.39	233,414.80	1,039,325.85	----------
Lane	9,089,656.58	4,787,514.73	1,784,732.06	2,422,753.60	94,656.19
Lincoln	6,772,748.93	4,653,816.19	212,473.57	1,905,712.20	746.97
Linn	3,741,382.09	2,054,485.39	456,264.48	1,127,007.44	103,624.78
Malheur	3,621,519.09	2,178,322.53	256,725.86	1,156,470.70	30,000.00
Marion	3,071,227.30	1,198,161.56	260,826.58	1,611,168.71	1,070.45
Morrow	1,273,123.51	942,544.79	317,758.89	11,060.00	1,759.83
Multnomah	5,103,419.77	2,438,769.99	62,825.83	2,514,677.05	87,146.90
Polk	2,537,430.71	1,791,965.97	155,023.89	589,051.75	1,389.10
Sherman	1,694,154.89	707,166.76	273,903.11	711,337.23	1,747.79
Tillamook	4,955,135.59	3,053,870.60	511,286.51	1,358,935.21	31,043.27
Umatilla	5,976,201.37	3,229,968.28	645,011.90	2,074,659.98	26,561.21
Union	3,474,225.42	1,988,757.48	602,607.02	717,539.76	165,321.16
Wallowa	1,449,647.70	740,695.22	353,995.78	354,956.70	----------
Wasco	5,679,750.98	2,838,739.89	868,761.50	1,962,019.93	10,229.66
Washington	3,225,383.24	2,320,028.10	100,412.78	793,688.57	11,253.79
Wheeler	2,454,491.75	1,333,646.82	189,078,49	931,766.44	----------
Yamhill	3,645,937.92	2,066,331.43	435,108.76	1,124,363.19	20,134.54
Undistributed	634,539.10	329,014.17	----------	305,524.93	----------
Totals	$147,594,398.00	$ 86,349,167.71	$15,073,455.39	$45,154,271.23	$1,017,503.67
Primary maintenance	$ 41,738,268.90	$ 41,466,154.22	$ 102,793.29	$ 167,426.83	$ 1,894.56
Secondary construction	9,494,335.56	5,434,451.72	281,005.58	3,778,222.92	655.34
Secondary maintenance	5,018,185.25	5,001,928.52	2,370.44	13,886.29	----------
County road construction	3,893,332.43	1,858,282.59	305,538.91	1,714,084.70	15,426.23
County road maintenance	109,444.28	109,444.28	----------	----------	----------
General purposes	80,398,833.17	80,356,463.82	9,909.75	32,459.60	----------
Grand totals	$288,246,797.59	$220,575,892.86	$15,775,073.36	$50,860,351.57	$1,035,479.80

Table No. 14

EXPENDITURES FOR PRIMARY HIGHWAY MAINTENANCE WORK SUMMARIZED BY COUNTIES

Years 1917 to 1940, Inclusive

This table gives the totals of expenditures made for maintenance work in each of the several counties during the 24-year period ending June 30, 1940. It includes all expenditures for special maintenance, general maintenance and operation of drawbridges and ferries.

County	Total Amount Expended	Cooperation in Expenditures			
		By County	By State	By Federal Government	By Miscellaneous Contributors
Baker	$ 1,688,730.14	$ 1,687,940.36	$ 789.78	$	$
Benton	1,065,197.71	1,064,881.90	315.81		
Clackamas	1,076,031.10	1,075,790.13	240.97		
Clatsop	1,239,110.39	1,216,514.48	21,701.35		894.56
Columbia	593,242.03	593,242.03			
Coos	2,140,211.96	2,099,007.21	10,622.89	30,581.86	
Crook	421,735.83	421,735.83			
Curry	1,156,667.72	1,152,289.86	205.18	4,172.68	
Deschutes	1,032,554.65	1,020,308.30	240.10	12,006.25	
Douglas	2,146,331.60	2,141,548.38	4,783.22		
Gilliam	1,027,337.54	1,025,038.40	2,299.14		
Grant	861,424.30	858,994.13	2,430.17		
Harney	455,237.56	455,125.64	111.92		
Hood River	1,087,648.29	1,081,527.61		6,120.68	
Jackson	1,614,781.00	1,610,233.67	4,547.33		
Jefferson	408,743.04	402,922.12		5,820.92	
Josephine	722,398.13	720,756.54	1,641.59		
Klamath	2,845,134.67	2,837,502.69	48.52	7,583.46	
Lake	833,184.74	818,518.05		14,666.69	
Lane	1,862,057.34	1,840,621.36	1,899.06	19,536.92	
Lincoln	1,584,179.42	1,578,453.46	320.50	5,405.46	
Linn	735,083.43	726,053.93	2,880.46	6,149.04	
Malheur	1,088,572.02	1,088,112.26	459.76		
Marion	469,778.20	469,567.79	210.41		
Morrow	867,881.87	860,313.65	2,976.73	4,591.49	
Multnomah	794,879.16	794,879.16			
Polk	608,608.63	608,009.56	599.07		
Sherman	601,692.78	594,385.62		7,307.16	
Tillamook	1,416,257.03	1,406,477.44	8,779.59		1,000.00
Umatilla	2,221,580.98	2,172,384.53	5,712.23	43,484.22	
Union	1,679,924.16	1,679,409.47	514.69		
Wallowa	683,355.97	683,355.97			
Wasco	1,456,704.57	1,455,927.96	776.61		
Washington	376,173.33	364.632.58	11,540.75		
Wheeler	598,369.57	596,675.85	1,693.72		
Yamhill	918,486.05	904,034.31	14,451.74		
Undistributed	1,358,981.99	1,358,981.99			
Totals	$41,738,268.90	$41,466,154.22	$102,793.29	$167,426.83	$ 1,894.56

Table No.15

EXPENDITURES FOR SECONDARY STATE HIGHWAY CONSTRUCTION WORK SUMMARIZED BY COUNTIES

To June 30, 1940

This table gives the totals of the expenditures made for secondary highway construction work in each of the several counties to June 30, 1940. It includes expenditures for new construction, additions and betterments, surveys, engineering county construction and state expenditures in connection with forest road work.

County	Total Amount Expended	Construction Expenditures			
		By State	By County	By Federal Government	By Miscellaneous Contributors
Baker	$ 59,074.93	$ 53,881.93	$	$ 5,193.00	$
Benton	184,741.80	99,648.14	2,350.00	82,743.66	
Clackamas	406,005.34	215,211.79	47,825.95	142,967.60	
Clatsop	229,850.14	150,861.47	9,070.98	69,917.69	
Columbia	284,425.83	174,325.45		110,100.38	
Coos	521,479.41	197,478.56	2,000.00	322,000.85	
Crook	180,678.18	146,266.89	34,411.29		
Curry	33,233.16	12,809.56		20,423.60	
Deschutes	181,534.80	145,289.61	36,245.19		
Douglas	99,031.08	83,541.27		15,489.81	
Gilliam	72,871.34	39,116.62		33,754.72	
Grant	11,442.72	11,442.72			
Harney	39,938.27	16,741.67	23,196.60		
Hood River	149,278.75	87,136.07		62,142.68	
Jackson	599,960.59	526,878.13		73,082.46	
Jefferson	523,115.81	157,038.81		366,077.00	
Josephine	186,782.77	50,439.16		136,343.61	
Klamath	169,641.47	80,494.32		89,147.15	
Lake	28,776.75	20,475.30		8,301.45	
Lane	443,553.01	407,482.72	588.27	34,826.68	655.34
Lincoln	105,627.47	67,141.57		38,485.90	
Linn	322,484.66	192,977.25	23,000.00	106,507.41	
Malheur	753,249.47	245,215.44		508,034.03	
Marion	586,806.40	353,565.23		233,241.17	
Morrow	215,459.84	99,323.17		116,136.67	
Multnomah	790,111.43	334,511.18		455,600.25	
Polk	385,198.46	107,446.69		277,751.77	
Sherman	21,278.27	21,278.27			
Tillamook	115,923.72	103,815.46		12,108.26	
Umatilla	740,760.91	552,822.51	91,855.87	96,082.53	
Union	237,864.62	159,780.62		78,084.00	
Wallowa	102,386.82	33,634.92		68,751.90	
Wasco	81,458.82	69,029.39	5,461.43	6,968.00	
Washington	304,593.33	156,418.99		148,174.34	
Wheeler	44,712.30	28,766.30	5,000.00	10,946.00	
Yamhill	261,058.95	212,220.60		48,838.35	
Undistributed	19,943.94	19,943.94			
Totals	$9,494,335.56	$5,434,451.72	$281,005.58	$3,778,222.92	$ 655.34

Table No. 16

EXPENDITURES FOR SECONDARY HIGHWAY MAINTENANCE WORK SUMMARIZED BY COUNTIES

To June 30, 1940

This table gives the totals of the expenditures made for secondary highway maintenance work in each of the several counties to June 30, 1940. It includes expenditures for special maintenance, general maintenance and operation of drawbridges and ferries.

County	Total Amount Expended	Cooperation in Expenditures		
		By State	By County	By Federal Government
Baker	$ 115,427.70	$ 115,427.70	$	$
Benton	66,059.35	66,059.35		
Clackamas	372,822.71	372,822.71		
Clatsop	164,014.36	158,097.11		5,917.25
Columbia	141,957.04	141,957.04		
Coos	282,042.41	282,042.41		
Crook	70,715.05	70,715.05		
Curry	6,459.76	6,459.76		
Deschutes	185,629.54	185,629.54		
Douglas	158,751.33	158,751.33		
Gilliam	28,622.01	28,622.01		
Grant	21,830.90	21,830.90		
Harney	59,109.39	59,109.39		
Hood River	47,300.19	47,300.19		
Jackson	250,677.91	245,864.79	275.14	4,537.98
Jefferson	21,667.74	21,667.74		
Josephine	75,310.73	73,858.76		1,451.97
Klamath	178,195.92	178,195.92		
Lake	33,202.22	33,202.22		
Lane	352,028.31	351,920.31	108.00	
Lincoln	126,398.10	126,398.10		
Linn	149,809.78	149,809.78		
Malheur	164,711.45	164,711.45		
Marion	211,171.43	211,171.43		
Morrow	79,352.42	79,352.42		
Multnomah	23,615.99	23,615.99		
Polk	238,335.50	238,335.50		
Sherman	30,558.54	30,558.54		
Tillamook	7,731.26	7,731.26		
Umatilla	524,435.58	520,469.19	1,987.30	1,979.09
Union	112,501.52	112,501.52		
Wallowa	38,632.73	38,632.73		
Wasco	27,913.07	27,913.07		
Washington	288,390.57	288,390.57		
Wheeler	64,472.43	64,472.43		
Yamhill	185,012.79	185,012.79		
Undistributed	113,317.52	113,317.52		
Totals	$5,018,185.25	$5,001,928.52	$ 2,370.44	$ 13,886.29

Table No. 17

EXPENDITURES FOR COUNTY ROAD CONSTRUCTION WORK SUMMARIZED BY COUNTIES

To June 30, 1940

This table gives the totals of the expenditures made under direct supervision of State Highway Commission for county road construction work in each of the several counties to June 30, 1940. It includes expenditures for new construction and surveys in connection with Federal Aid Secondary projects and expenditures for construction of abandoned sections of State highways taken over by the counties.

County	Total Amount Expended	Construction Expenditures			
		By State	By County	By Federal Government	By Miscellaneous Contributors
Baker	$ 24,445.79	$ 18,720.81	$ 5,724.98	$	$
Benton	2,425.75	2,425.75			
Clackamas	208,169.02	93,857.67	24,102.11	89,972.35	236.89
Clatsop	23,705.60	23,572.81	132.79		
Columbia	42,724.71	7,735.35	116.36	34,873.00	
Coos	2,269.92	2,269.92			
Crook					
Curry	1,346.44	1,346.44			
Deschutes	129,065.19	95,437.62	15,551.57	17,426.00	650.00
Douglas	199,617.37	154,496.36	7,295.68	37,825.33	
Gilliam	7,936.65		7,936.65		
Grant	63,703.70	Cr. 60.05	9,086.75	54,677.00	
Harney					
Hood River	324.09	324.09			
Jackson	37,845.03	37,845.03			
Jefferson	13,165.82	3,010.60	3,800.00	6,355.22	
Josephine	6,459.46	6,459.46			
Klamath	193,779.54	81,374.54		112,405.00	
Lake	101,554.43	30,611.89	23,287.43	46,629.43	1,025.68
Lane	333,020.66	188,208.69	23,763.69	119,351.62	1,696.66
Lincoln	4,831.63	3,494.56		1,337.07	
Linn	78,869.06	Cr. 182.70	39,553.76	39,498.00	
Malheur	29,411.06	15,414.48	13,996.58		
Marion	425,116.36	318,627.23	22,600.20	83,888.93	
Morrow					
Multnomah	721,050.31	61,846.18	5,701.90	641,685.23	11,817.00
Polk	68,046.90	23,226.10	2,104.80	42,716.00	
Sherman	92,345.82	62,519.90	419.50	29,406.42	
Tillamook	129,330.15	62,584.46	26,484.69	40,261.00	
Umatilla	35,057.93	30,206.93	4,851.00		
Union	17,167.80	7,862.18		9,305.62	
Wallowa	84,332.75	47,338.15	10,770.60	26,224.00	
Wasco	174,880.55	95,130.71	21,933.27	57,816.57	
Washington	373,769.02	222,363.02	14,322.79	137,083.21	
Wheeler	6,204.82	6,204.82			
Yamhill	261,359.10	154,009.59	22,001.81	85,347.70	
Totals	$3,893,332.43	$1,858,282.59	$305,538.91	$1,714,084.70	$ 15,426.23

Table No. 18

EXPENDITURES FOR COUNTY ROAD MAINTENANCE WORK SUMMARIZED BY COUNTIES

To June 30, 1940

This table gives the totals of the expenditures made under direct supervision of State Highway Commission for county road maintenance work in each of the several counties to June 30, 1940. The expenditures are principally for maintenance of county road signs and for maintenance of certain sections of county roads which, at the time the expenditures were made, were on the state highway system.

County	Total Amount Expended	Cooperation in Expenditures		
		By State	By County	By Federal Government
Baker	$ 1,271.98	$ 1,271.98	$	$
Benton	1,105.02	1,105.02		
Clackamas	5,895.52	5,895.52		
Clatsop	13,118.67	13,118.67		
Columbia	1,042.82	1,042.82		
Coos	601.34	601.34		
Crook	290.12	290.12		
Curry	139.75	139.75		
Deschutes	606.61	606.61		
Douglas	1,819.52	1,819.52		
Gilliam	523.64	523.64		
Grant	475.72	475.72		
Harney	778.34	778.34		
Hood River	604.22	604.22		
Jackson	1,569.90	1,569.90		
Jefferson	440.75	440.75		
Josephine	995.94	995.94		
Klamath	2,609.04	2,609.04		
Lake	1,188.92	1,188.92		
Lane	1,478.52	1,478.52		
Lincoln	795.43	795.43		
Linn	3,589.74	3,589.74		
Malheur	1,719.09	1,719.09		
Marion	5,183.58	5,183.58		
Morrow	1,137.57	1,137.57		
Multnomah	20,966.08	20,966.08		
Polk	1,807.21	1,807.21		
Sherman	695.88	695.88		
Tillamook	355.10	355.10		
Umatilla	2,945.92	2,945.92		
Union	1,127.86	1,127.86		
Wallowa	759.91	759.91		
Wasco	952.53	952.53		
Washington	27,089.96	27,089.96		
Wheeler	401.81	401.81		
Yamhill	1,734.81	1,734.81		
Undistributed	1,625.46	1,625.46		
Totals	$109,444.28	$109,444.28	$	$

Table No. 19

FOREST HIGHWAY EXPENDITURES ON STATE HIGHWAY ROUTES CLASSIFIED BY COUNTIES

Years 1917 to 1939, Inclusive

In this table are given the expenditures that have been made in connection with forest highway construction work on the state highway system. This work was supervised by the United States Public Roads Administration, and the amounts of Federal Government expenditures and county expenditures here shown are as reported by that bureau. The state expenditures shown are also included in the foregoing tables Nos. 11, 13 and 15, but the Federal Government and county expenditures are not included in that table. For a classification of these expenditures by highways see table No. 20.

County	Total Amount Expended	Cooperation in Expenditures		
		By State	By County	By Federal Government
Baker	$ 186,978.85	$ 44,995.09	$ 584.00	$ 141,399.76
Clackamas	992,409.55	425,880.22	....	566,529.33
Coos	231,790.61	....	83,000.00	148,790.61
Crook	123,325.73	39,634.17	26,875.00	56,816.56
Curry	409,688.12	116,289.11	30,000.00	263,399.01
Deschutes	289,617.75	106,546.57	5,000.00	178,071.18
Douglas	1,499,281.67	314,053.51	336,637.90	848,590.26
Grant	1,826,449.79	124,490.25	250,046.25	1,451,913.29
Harney	406,575.63	....	65,000.00	341,575.63
Hood River	727,355.59	303,993.94	....	423,361.65
Jackson	1,032,205.89	296,095.20	3,438.81	732,671.88
Jefferson	227,750.42	56,000.00	13,000.00	158,750.42
Josephine	504,894.27	294,433.59	17,522.99	192,937.69
Klamath	821,419.43	228,598.60	172,454.97	420,365.86
Lake	799,975.20	111,482.27	....	688,492.93
Lane	5,614,024.08	1,106,616.47	724,547.45	3,782,860.16
Lincoln	2,707,260.21	884,418.77	315,000.00	1,507,841.44
Linn	1,272,500.48	....	118,000.00	1,154,500.48
Morrow	140,057.14	....	75,000.00	65,057.14
Multnomah	276,636.60	41,150.00	....	235,486.60
Tillamook	1,060,554.57	333,387.67	18,624.69	708,542.21
Umatilla	880,595.46	155,287.23	145,718.32	579,589.91
Union	385,183.57	....	....	385,183.57
Wallowa	483,727.76	67,951.65	39,210.35	376,565.76
Wasco	503,165.56	169,289.06	25,000.00	308,876.50
Wheeler	560,624.11	105,060.12	29,900.00	425,663.99
Totals	$23,964,048.04	$ 5,325,653.49	$ 2,494,560.73	$16,143,833.82

Table No. 20

FOREST HIGHWAY EXPENDITURES ON STATE HIGHWAY ROUTES CLASSIFIED BY HIGHWAYS

Years 1917 to 1937, Inclusive

In this table are given the expenditures that have been made in connection with forest highway construction work on the state highway system. This work was supervised by the United States Public Roads Administration, and the amounts of Federal Government expenditures and county expenditures here shown are as reported by that bureau. The state expenditures shown are also included in the foregoing tables Nos. 11, 13 and 15, but the Federal Government and county expenditures are not included in that table. For a classification of these expenditures by counties see table No. 19.

Hwy. No.	Highway	Total Amount Expended	Cooperation in Expenditures		
			By State	By County	By Federal Government
1	Pacific, Jct. City-South	$ 309,776.86	$ 182,776.86	$ 23,000.00	$ 104,000.00
2	Columbia River	499,043.43	92,500.00		406,543.43
4	The Dalles-California	636,486.69	178,806.28	149,592.81	308,087.60
5	John Day	621,192.20	149,485.34	162,110.76	309,596.10
9	Oregon Coast	3,023,375.77	806,752.01	495,163.36	1,721,460.40
11	Enterprise-Lewiston	363,765.84	67,951.65	39,210.35	256,603.84
15	McKenzie	898,606.12	429,278.06	20,000.00	449,328.06
16	Santiam	1,569,019.26	56,000.00	131,000.00	1,382,019.26
18	Willamette	2,232,702.12	171,501.74	61,998.26	1,999,202.12
19	Fremont	290,009.77	879.37		289,130.40
20	Klamath Falls-Lakeview	597,401.10	126,919.50		470,481.60
22	Crater Lake	682,072.50	301,060.92	26,300.97	354,710.61
25	Redwood	194,160.63	130,121.32	9,522.99	54,516.32
26	Mt. Hood	1,262,063.22	577,227.85		684,835.37
27	Alsea	933,354.09	410,818.40	165,000.00	357,535.69
28	Pendleton-John Day	1,242,477.24	175,287.23	202,218.32	864,971.69
32	McMinnville-Tillamook	423,943.55	149,528.51	18,624.69	255,790.35
34	Siuslaw	1,962,790.55	500,833.19	467,688.75	994,268.61
38	Oregon Caves	310,733.64	164,312.27	8,000.00	138,421.37
39	Salmon River	1,034,305.79	180,000.00		854,305.79
41	Ochoco	356,732.05	144,694.29	31,775.00	180,262.76
44	Wapinitia	735,245.73	270,585.37	25,000.00	439,660.36
45	Umpqua	323,273.90		128,001.65	195,272.25
48	John Day-Burns	1,257,495.91		97,019.49	1,160,476.42
	Secondary highways	2,204,020.08	58,333.33	233,333.33	1,912,353.42
	Totals	$23,964,048.04	$5,325,653.49	$2,494,560.73	$16,143,833.82

Table No. 21

STATISTICS PERTAINING TO FOREST HIGHWAY WORK ON STATE HIGHWAYS

The statistics here given apply to highway work in the State of Oregon performed under the supervision of the Public Roads Administration. All of the work included is upon state highways at points where these highways are in or adjacent to National Forests. The work is financed under cooperative agreements between the Federal Government, the state and the counties of the state, the federal funds being Oregon's proportionate share of funds annually appropriated by Congress for forest road work.

The amounts of county and Federal Government expenditures here given, and the mileages of work performed, are as reported by the Public Roads Administration. The amounts of state expenditures are as shown by the disbursement records of the State Highway Commission.

Expenditures on Forest Highway Work

Year	Expenditures			
	State Funds	County Funds	Government Funds	Total
1918-1919-1920	$ 809,261.58	$ 102,271.45	$ 656,708.64	$ 1,568,241.67
1921-1922	724,970.53	67,142.21	836,765.18	1,628,877.92
1923-1924	1,092,660.31	823,942.05	1,908,176.76	3,824,779.12
1925-1926	759,762.58	261,961.69	742,498.02	1,764,222.29
1927	147,859.76	105,611.36	325,542.44	579,013.56
1928	103,084.09	54,543.79	257,246.68	414,874.56
1929	82,000.00	32,000.00	421,609.32	535,609.32
1930	696,986.98	100,000.00	410,827.97	1,207,814.95
1931	653,385.58	125,000.00	1,451,085.84	2,229,471.42
1932	34,430.75	177,869.25	510,036.92	722,336.92
1933	87,217.99	*172,676.50	*1,715,374.09	*1,975,268.58
1934	28,416.93	....	1,157,462.02	1,185,878.95
1935	Cr. 32,547.32	†282,206.16	†1,933,545.68	†2,183,204.52
1936	124,030.12	80,969.88	832,239.03	1,037,239.03
1937	93,409.12	19,090.88	1,327,423.24	1,439,923.24
1938	Cr. 114,275.51	89,275.51	830,476.91	805,476.91
1939	35,000.00	....	826,815.08	861,815.08
Totals	$ 5,325,653.49	$ 2,494,560.73	$16,143,833.82	$23,964,048.04

* Includes prior expenditures on John Day-Burns Highway, which highway was taken into primary system in 1933.

† Includes prior expenditures on Secondary Highways which have been taken into the Forest Road Table during 1935.

Table No. 21—Continued

MILEAGES OF WORK COMPLETED ON FOREST HIGHWAY PROJECTS

Year	Concrete Paving (Miles)	Bitu-minous Macadam (Miles)	Oiled Surface (Miles)	Rock Surfacing (Miles)	Resur-facing (Miles)	Grading (Miles)	Grade Widening (Miles)
1918	....	....	....	....	....	4.30	....
1919	....	....	....	....	....	62.90	....
1920	....	....	....	22.59	....	56.10	....
1921	....	....	....	38.24	....	20.68	....
1922	....	....	....	22.37	....	15.69	....
1923	....	....	....	87.92	....	61.00	....
1924	....	....	....	74.62	....	153.37	....
1925	....	....	....	99.94	....	50.70	....
1926	....	....	....	41.41	....	52.32	....
1927	....	....	....	53.50	....	25.10	14.70
1928	....	....	....	17.60	....	16.80	7.00
1929	....	....	....	6.00	....	18.80	0.20
1930	....	....	....	25.88	....	25.04	5.31
1931	....	....	....	21.35	....	46.14	15.15
1932	....	....	....	28.36	....	3.27	1.00
1933	....	24.94	....	64.34	9.97	21.79	....
1934	....	24.65	53.51	17.11	0.97	10.88	4.89
1935	....	....	30.71	....	....	6.47	0.95
1936	....	....	....	30.06	13.53	19.31	16.13
1937	0.18	37.26	23.22	36.33	5.40	4.61	13.24
1938	....	....	7.10	....	14.95	2.67	20.37
1939	....	....	20.69	7.57	13.12	2.58	5.97
Totals	0.18	86.85	135.23	695.19	57.94	680.52	104.91

Table No. 22

COUNTY DISBURSEMENTS FOR ROAD PURPOSES

1935 to 1939, Inclusive

County	1935	1936	1937	1938	1939
Baker	$ 52,124.59	$ 85,630.43	$ 66,004.99	$ 123,036.29	$ 122,300.75
Benton	61,753.78	73,635.10	88,624.05	72,474.37	90,051.08
Clackamas	143,994.46	203,873.65	230,470.26	281,260.84	290,678.93
Clatsop	120,260.39	185,749.33	221,146.20	159,892.21	140,446.83
Columbia	68,905.41	71,246.89	89,626.81	102,553.94	114,316.50
Coos	197,615.04	365,330.43	236,551.05	231,924.59	233,445.77
Crook	10,119.82	16,336.12	22,669.59	26,996.55	32,051.93
Curry	12,030.68	18,794.68	19,528.75	18,784.52	11,010.67
Deschutes	10,654.92	44,261.61	25,731.99	48,856.79	45,196.17
Douglas	127,024.59	137,209.45	183,526.75	202,248.26	178,249.39
Gilliam	32,142.56	49,302.31	35,746.68	34,061.84	25,260.57
Grant	27,597.20	39,283.44	29,035.48	51,773.07	44,429.56
Harney	28,405.91	35,707.11	34,480.53	32,187.42	33,571.69
Hood River	41,582.71	61,725.56	60,587.00	56,252.42	56,549.32
Jackson	108,999.38	135,891.02	165,484.38	186,688.13	187,029.74
Jefferson	7,250.84	10,558.98	10,734.21	9,196.47	5,614.46
Josephine	44,696.00	59,375.74	68,211.79	86,077.14	66,768.26
Klamath	84,564.20	112,208.83	103,073.96	143,352.72	118,489.03
Lake	27,506.31	52,627.14	42,122.07	50,236.93	54,919.48
Lane	195,284.96	216,113.81	279,341.45	283,595.70	298,949.34
Lincoln	42,192.34	77,951.38	65,035.24	69,003.38	49,052.51
Linn	279,703.13	293,465.86	421,787.61	470,029.33	356,482.74
Malheur	30,386.18	48,949.54	45,935.20	49,656.13	62,011.20
Marion	234,154.84	291,695.28	315,604.99	315,604.99	312,907.78
Morrow	63,608.82	55,410.94	49,510.75	54,429.26	61,506.00
Multnomah	590,244.56	608,682.16	659,231.64	730,542.56	766,632.89
Polk	54,830.19	85,463.53	77,846.21	113,197.88	106,703.35
Sherman	10,831.21	18,796.02	37,581.89	28,267.62	27,048.65
Tillamook	70,764.25	109,659.79	98,122.50	131,939.84	108,858.54
Umatilla	161,554.07	120,855.92	140,663.45	177,445.02	155,800.91
Union	60,461.99	95,420.58	81,661.27	104,726.85	132,022.67
Wallowa	34,236.37	69,533.25	49,378.44	55,236.99	63,115.55
Wasco	63,815.85	90,173.62	106,583.02	125,237.55	120,191.24
Washington	210,494.13	180,191.91	207,814.86	271,121.85	241,486.19
Wheeler	5,698.18	13,718.65	13,351.97	15,046.52	10,083.83
Yamhill	77,999.67	176,175.18	126,831.22	153,039.56	123,468.16
Totals	$3,393,489.53	$4,311,005.24	$4,509,638.25	$5,065,975.53	$4,846,701.68

Table No. 23

COUNTY BONDS AND WARRANT INDEBTEDNESS IN CONNECTION WITH ROADS AND BRIDGES

July 1, 1940

The information contained in this table was compiled by the State Treasurer.

County	Bonds Outstanding	Road Warrants Outstanding	Total Road and Bridge Debt	Sinking Fund	Net Road and Bridge Debt
Baker	$ 500,000.00	$	$ 500,000.00	$ 191,293.61	$ 308,706.39
Benton	72,000.00		72,000.00	24,833.25	47,166.75
Clackamas	622,930.00		622,930.00		622,930.00
Clatsop					
Columbia					
Coos	720,000.00	230,654.20	950,654.20	49,500.59	901,153.61
Crook	136,000.00		136,000.00	21,649.07	114,350.93
Curry	75,000.00	42.95	75,042.95	33,827.25	41,215.70
Deschutes	34,000.00	10,481.84	44,481.84		44,481.84
Douglas					
Gilliam	128,000.00		128,000.00	43,304.10	84,695.90
Grant	319,000.00		319,000.00	26,000.00	293,000.00
Harney	100,000.00		100,000.00		100,000.00
Hood River	255,500.00		255,500.00	183,428.63	72,071.37
Jackson	177,000.00		177,000.00	165,437.26	11,562.74
Jefferson	18,000.00		18,000.00	10,000.00	8,000.00
Josephine					
Klamath	579,700.00	24,515.27	604,215.27	123,205.14	481,010.13
Lake					
Lane	480,000.00		480,000.00	3,849.85	476,150.15
Lincoln		66,903.22	66,903.22	822.42	66,080.80
Linn					
Malheur		48,480.45	48,480.45	184.85	48,295.60
Marion					
Morrow	351,500.00		351,500.00	27,972.00	323,528.00
Multnomah	10,732,500.00		10,732,500.00	149,716.54	10,582,783.46
Polk					
Sherman					
Tillamook					
Umatilla					
Union					
Wallowa					
Wasco	134,000.00		134,000.00	105,000.00	29,000.00
Washington					
Wheeler	141,000.00	7,795.38	148,795.38	21,181.76	127,613.62
Yamhill	6,000.00	58,500.00	64,500.00	12,908.27	51,591.73
Totals	$15,582,130.00	$447,373.31	$16,029,503.31	$1,194,114.59	$14,835,388.72

Table No. 24

APPORTIONMENT TO COUNTIES OF MOTOR VEHICLE FEES

1920 to 1940, Inclusive

County	Direct Apportionment 1920 to 1933		Apportionment From Highway Fund, 1933 to 1940		
	Motor Vehicle Fees	Motor Transportation Fees	$1,600,000.00 Yearly 1933 to 1936	15.7% of Total Highway Income 1937 to 1940	Total Apportionment From Highway Fund
Baker	$ 271,754.78	$ 6,663.10	$ 93,638.00	$ 125,068.62	$ 218,706.62
Benton	331,147.52	7,987.50	117,842.04	154,185.27	272,027.31
Clackamas	781,725.30	17,959.23	278,809.32	378,408.78	657,218.10
Clatsop	381,029.53	8,228.79	127,276.44	168,389.13	295,665.57
Columbia	287,812.38	7,134.75	105,411.28	141,805.31	247,216.59
Coos	493,068.89	11,845.18	173,731.72	234,977.15	408,708.87
Crook	61,877.70	1,479.01	19,236.08	27,846.94	47,083.02
Curry	55,264.62	1,387.94	21,634.16	29,477.78	51,111.94
Deschutes	292,763.81	7,227.86	97,901.56	133,281.27	231,182.83
Douglas	418,357.19	9,973.09	142,054.40	190,479.13	332,533.53
Gilliam	76,368.30	1,672.68	21,404.16	27,933.39	49,337.55
Grant	82,504.63	2,387.80	34,797.88	47,497.79	82,295.67
Harney	75,715.98	2,497.05	34,515.00	44,850.85	79,365.85
Hood River	214,944.28	4,855.61	71,699.00	96,495.00	168,194.00
Jackson	670,552.49	16,941.41	252,936.96	332,491.54	585,428.50
Jefferson	40,510.97	928.18	12,348.36	16,112.39	28,460.75
Josephine	215,424.40	5,742.57	80,790.32	114,425.12	195,215.44
Klamath	533,146.70	16,532.94	231,038.12	316,831.87	547,869.99
Lake	87,509.63	2,510.80	35,220.00	48,195.11	83,415.11
Lane	949,858.11	23,323.29	340,195.88	466,780.08	806,975.96
Lincoln	119,949.78	3,513.73	50,258.88	73,550.24	123,809.12
Linn	480,864.10	10,543.08	160,688.80	220,812.27	381,501.07
Malheur	159,267.93	4,852.82	67,642.48	104,087.69	171,730.17
Marion	1,164,524.17	26,736.54	413,578.68	568,408.33	981,987.01
Morrow	95,094.79	2,171.69	29,518.60	38,296.59	67,815.19
Multnomah	6,838,588.80	159,298.75	2,414,251.52	3,032,605.39	5,446,856.91
Polk	285,457.90	6,519.86	99,625.96	129,808.91	229,434.87
Sherman	85,064.85	1,539.46	20,321.28	26,394.09	46,715.37
Tillamook	234,090.63	5,476.32	80,694.48	104,568.47	185,262.95
Umatilla	541,729.19	11,874.48	176,309.44	230,227.34	406,536.78
Union	307,007.47	7,487.59	110,955.96	145,102.30	256,058.26
Wallowa	114,583.55	2,664.43	33,905.68	47,188.24	81,093.92
Wasco	271,209.65	6,052.11	90,653.76	118,560.69	209,214.45
Washington	567,299.56	12,856.13	195,407.96	268,572.08	463,980.04
Wheeler	41,761.62	1,162.79	15,690.96	21,005.52	36,696.48
Yamhill	426,137.42	9,784.23	148,014.88	200,191.67	348,206.55
Totals	$18,053,968.62	$ 429,812.79	$6,400,000.00	*$8,424,912.34	$14,824,912.34

* Includes the July and December, 1940, apportionments.

Table No. 25

DISPOSITION OF 1938 STATE SECONDARY HIGHWAY FUNDS

County	1937 Balance	1938 Allotment	Total Available in 1938	Maintenance and Betterment Expenditures	Survey Expenditures	Federal Project Expenditures	State Project Expenditures	Right of Way Expenditures	Total Expenditures	Expended in Excess of Allotment	Unexpended Balance of Allotment
Baker	$	$ 8,265.60	$ 8,265.60	$ 19,218.68	$ 19.31	$	$ 4,250.49	$ 7.50	$ 23,495.98	$ 15,230.38	$
Benton		7,027.85	7,027.85	13,408.43	2,621.16	4,807.80		194.32	21,031.71	14,003.86	
Clackamas		21,828.25	21,828.25	68,092.19	187.27	9,037.69		30.00	77,347.15	55,518.90	
Clatsop		7,463.31	7,463.31	22,598.41	3,531.61	16,285.63		1,626.87	44,042.52	36,579.21	
Columbia		6,161.68	6,161.68	26,278.49	2,582.55	6,023.72		705.15	35,589.91	29,428.23	
Coos		10,775.93	10,775.93	43,932.11	719.92	25,798.20		923.96	71,374.19	60,598.26	
Crook		2,276.70	2,276.70	11,029.64	3,582.91			6.00	14,618.55	12,341.85	
Curry	1,697.40	1,931.95	3,629.35	10,145.32					10,145.32	6,515.97	
Deschutes	8,845.08	5,267.95	14,113.03	6,602.43	564.48		6,993.20	10.00	14,170.11	57.08	
Douglas		13,120.53	13,120.53	31,695.39					31,695.39	18,574.86	
Gilliam		3,663.66	3,663.66	4,570.01		1,252.05			5,822.06	2,158.40	
Grant	2,647.54	3,265.93	5,913.47	4,452.59					4,452.59		1,460.88
Harney		3,139.87	3,139.87	8,465.90	4.98		483.53	549.84	9,504.25	6,364.38	
Hood River		4,207.15	4,207.15	7,887.49	513.28	5,991.56		35.00	14,427.33	10,220.18	
Jackson		13,772.37	13,772.37	35,410.75	401.96	8,709.77	8,203.11	2,309.69	55,035.28	41,262.91	
Jefferson		2,152.92	2,152.92	3,908.23		4,407.82	1,346.84	1,110.59	10,773.48	8,620.56	
Josephine		3,571.14	3,571.14	11,798.12	111.83			2,667.50	14,577.45	11,006.31	

Klamath		18,001.79	18,001.79	28,290.54	493.45	85.64			28,869.63	10,867.84	
Lake		4,504.49	4,504.49	5,249.56					5,249.56	745.07	
Lane		21,825.29	21,825.29	49,700.45	232.54				49,932.99	28,107.70	
Lincoln		4,078.69	4,078.69	37,049.07	1,400.15		19,033.45	426.40	57,914.07	53,835.38	
Linn		14,454.05	14,454.05	29,897.41	1,692.81	41,746.00		17,288.11	90,624.33	76,170.28	
Malheur		4,914.40	4,914.40	25,044.05	3,093.59	8,589.82		451.08	37,178.54	32,264.14	
Marion		23,411.55	23,411.55	55,587.89	2,516.55	Cr. 61 01		22.50	58,065.93	34,654.38	
Morrow		3,681.91	3,681.91	18,305.91	2,542.03				20,847.94	17,166.03	
Multnomah	83,955.51	45,000.00	128,955.51	14,033.83	4,397.35		34,447.26	54,268.99	107,147.43		21,808.08
Polk		7,950.76	7,950.76	36,970.64	617.31	755.48			38,343.43	30,392.67	
Sherman		3,616.02	3,616.02	4,854.79					4,854.79	1,238.77	
Tillamook	3,155.36	6,197.35	9,352.71	721.09					721.09		8,631.62
Umatilla		19,128.77	19,128.77	26,345.31	207.91	30,122.68		636.56	57,312.46	38,183.69	
Union		7,932.77	7,932.77	17,323.45	117.31	8,733.43	52,032.97	3,834.99	82,042.15	74,109.38	
Wallowa		3,884.52	3,884.52	10,620.71					10,620.71	6,736.19	
Wasco		7,215.86	7,215.86	4,188.81					4,188.81		3,027.05
Washington		13,597.08	13,597.08	40,995.45	141.25	45.80	8,891.01	838.46	50,911.97	37,314.89	
Wheeler		1,645.55	1,645.55	15,222.14	605.23			130.00	15,957.37	14,311.82	
Yamhill		10,143.62	10,143.62	46,473.95	722.54	11,444.29		2,870.56	61,511.34	51,367.72	
Totals	$100,300.89	$339,077.26	$439,378.15	$796,369.23	$ 33,621.28	$183,776.37	$135,686.86	$ 90,944.07	$1,240,397.81	$ 835,947.29	$ 34,927.63
Multnomah County Surplus		110,922.74								—110,922.74	
Totals	$100,300.89	$450,000.00	$439,378.15	$796,369.23	$ 33,621.28	$183,776.37	$135,686.86	$ 90,944.07	$1,240,397.81	$ 725,024.55	$ 34,927.63

Table No. 26

DISPOSITION OF 1939 STATE SECONDARY HIGHWAY FUNDS

County	1938 Balance	1939 Allotment	Total Available in 1939	Maintenance and Betterment Expenditures	Survey Expenditures	State Fund Construction Expenditures	Right of Way Expenditures	Total Expenditures	Expended in Excess of Allotment	Unexpended Balance of Allotment
Baker	$	$ 8,265.60	$ 8,265.60	$ 21,795.83	$ 315.28	$	$	$ 22,111.11	$ 13,845.51	$ ....
Benton	....	7,027.85	7,027.85	17,214.37	2,074.52	16,407.50	2,082.65	37,779.04	30,751.19	....
Clackamas	....	21,828.25	21,828.25	51,721.02	420.27	7,838.82	....	59,980.11	38,151.86	....
Clatsop	....	7,463.31	7,463.31	25,152.80	1,087.51	17,955.47	6.69	44,202.47	36,739.16	....
Columbia	....	6,161.68	6,161.68	40,262.22	527.92	14,387.13	338.02	55,515.29	49,353.61	....
Coos	....	10,775.93	10,775.93	41,433.19	353.60	58,182.23	3,760.63	103,729.65	92,953.72	....
Crook	....	2,276.70	2,276.70	14,358.48	2,545.63	....	137.40	17,041.51	14,764.81	....
Curry	....	1,931.95	1,931.95	952.61	....	....	....	952.61	....	979.34
Deschutes	....	5,267.95	5,267.95	5,886.47	30.76	4,044.45	287.80	10,249.48	4,981.53	....
Douglas	....	13,120.53	13,120.53	18,548.97	....	....	....	18,548.97	5,428.44	....
Gilliam	....	3,663.66	3,663.66	4,608.86	701.42	17,187.94	....	22,498.22	18,834.56	....
Grant	1,460.88	3,265.93	4,726.81	2,723.48	2,169.72	5,084.92	....	9,978.12	5,251.31	....
Harney	....	3,139.87	3,139.87	10,422.92	2,099.68	295.23	50.70	12,868.53	9,728.66	....
Hood River	....	4,207.15	4,207.15	8,807.84	1,471.20	21,954.13	912.70	33,145.87	28,938.72	....
Jackson	....	13,772.37	13,772.37	20,949.20	375.72	14,996.99	9,273.24	45,595.15	31,822.78	....
Jefferson	....	2,152.92	2,152.92	4,338.65	1,107.08	44,853.13	....	50,298.86	48,145.94	....
Josephine	....	3,571.14	3,571.14	10,291.06	2,343.22	19,500.00	2,986.70	35,120.98	31,549.84	....
Klamath	....	18,001.79	18,001.79	25,350.38	91.43	Cr. 85.00	....	25,356.81	7,355.02	....

Lake		4,504.49	4,504.49	10,260.63			1.00	10,261.63	5,757.14	
Lane		21,825.29	21,825.29	37,058.95	1,106.38	43,314.53		81,479.86	59,654.57	
Lincoln		4,078.69	4,078.69	18,202.95	1,820.33		1.00	20,024.28	15,945.59	
Linn		14,454.05	14,454.05	25,965.66	263.41	Cr. 617.17	1,036.89	26,648.79	12,194.74	
Malheur		4,914.40	4,914.40	30,599.91	454.20	46,779.78	3,487.73	81,321.62	76,407.22	
Marion		23,411.55	23,411.55	44,557.05	1,275.16	24,042.48	8.50	69,883.19	46,471.64	
Morrow		3,681.91	3,681.91	14,714.10	153.21	27,280.56	2,401.50	44,549.37	40,867.46	
Multnomah	21,808.08	45,000.00	66,808.08	9,968.95		24,970.31	7,640.43	42,579.69		24,228.39
Polk		7,950.76	7,950.76	27,854.77	133.42	7,553.10		35,541.29	27,590.53	
Sherman		3,616.02	3,616.02	3,466.86	374.32			3,841.18	225.16	
Tillamook	8,631.62	6,197.35	14,828.97	1,519.72	65.10	10,446.29		12,031.11		2,797.86
Umatilla		19,128.77	19,128.77	34,423.99	243.87	18,266.38		52,934.24	33,805.47	
Union		7,932.77	7,932.77	17,966.10	957.73	23,259.20	182.22	42,365.25	34,432.48	
Wallowa		3,884.52	3,884.52	10,701.52				10,701.52	6,817.00	
Wasco	3,027.05	7,215.86	10,242.91	2,503.05			5,727.93	8,230.98		2,011.93
Washington		13,597.08	13,597.08	33,888.12	752.33	11,494.47	574.90	46,709.82	33,112.74	
Wheeler		1,645.55	1,645.55	10,265.02			22.50	10,287.52	8,641.97	
Yamhill		10,143.62	10,143.62	51,638.37	1,305.38	7,333.54	Cr. 24.56	60,252.73	50,109.11	
Totals	$ 34,927.63	$339,077.26	$374,004.89	$710,374.07	$ 26,619.80	$486,726.41	$ 40,896.57	$1,264,616.85	$920,629.48	$ 30,017.52
Multnomah Co. surplus		110,922.74							–110,922.74	
Totals	$ 34,927.63	$450,000.00	$374,004.89	$710,374.07	$ 26,619.80	$486,726.41	$ 40,896.57	$1,264,616.85	$809,706.74	$ 30,017.52

Table No. 27

MILEAGES OF PRIMARY STATE HIGHWAYS

The mileages given in this table are inclusive of mileages within cities and towns.

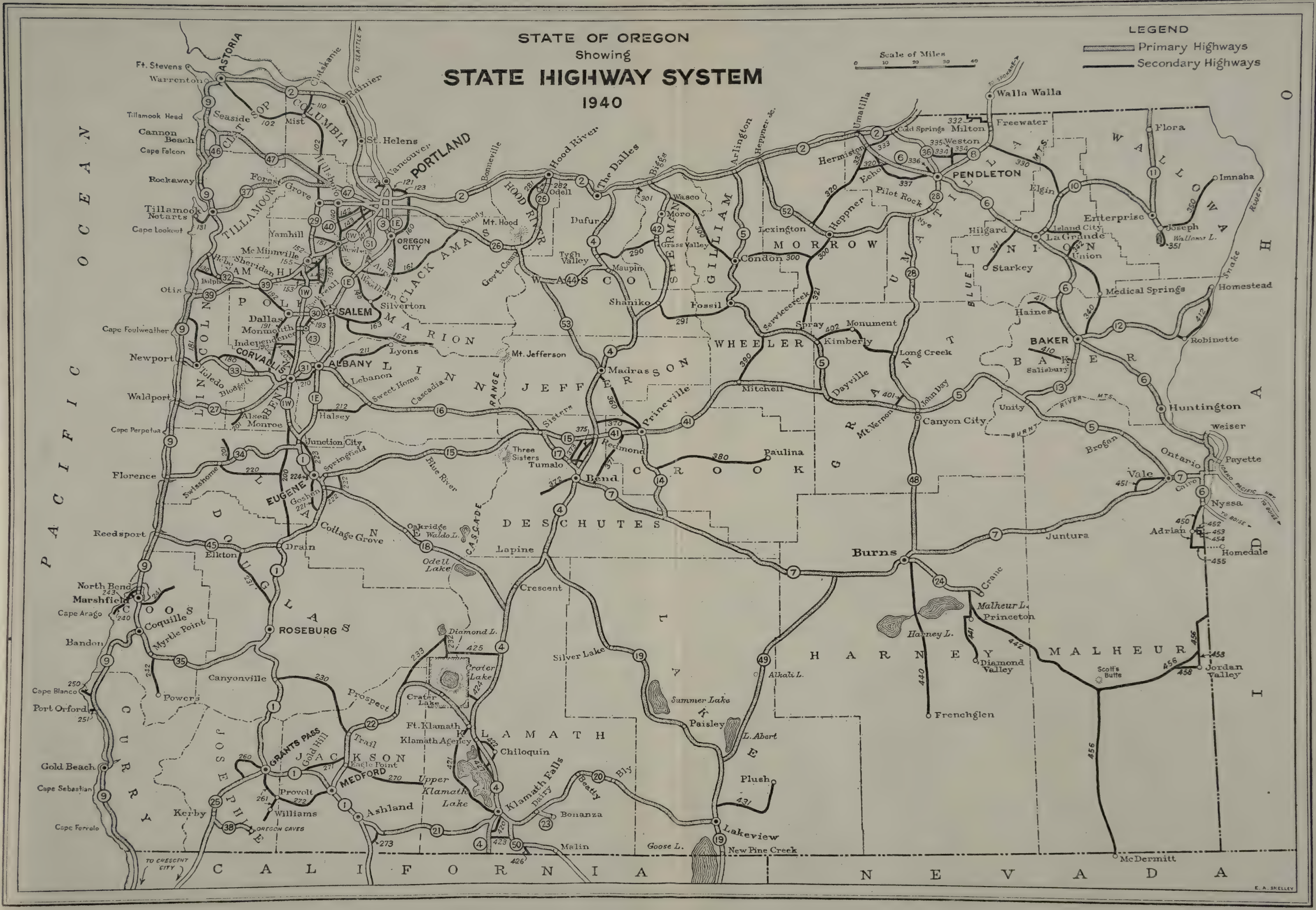
Hwy. No.	Highway	Total Mileage of Highway	Miles of Different Types of Improvement						
			Concrete Pavement	Bituminous Pavement	Bituminous Macadam	Oiled Surfacing	Unoiled Surfacing	Graded	Unimproved
1	Pacific	229.87	71.35	144.12	14.40				
1E	Pacific, East	113.06	50.75	53.56	8.75				
1W	Pacific, West	116.10	63.71	31.54	20.85				
2	Columbia River	316.63	24.00	168.55	66.37	57.71			
3	Oswego	11.55	7.53	4.02					
4	The Dalles-California	300.09	2.53	5.74	40.23	251.59			
5	John Day	282.92	0.07		37.36	202.09	43.40		
6	Old Oregon Trail	238.81	2.86	6.83	169.14	59.98			
7	Central Oregon	258.59	0.04	0.27	58.83	199.45			
8	Oregon-Washington	35.85		8.07	27.78				
9	Oregon Coast	383.45	33.53	29.78	105.01	204.66		8.29	2.18
10	Wallowa Lake	72.79	0.24	2.95	13.44	56.16			
11	Enterprise-Lewiston	45.28					35.84	8.59	0.85
12	Baker-Homestead	88.67		0.33		48.87	9.34	10.69	19.44
13	Baker-Unity	46.14		0.37		8.82	15.92	21.03	
14	Crooked River	42.48						42.48	
15	McKenzie	111.55	0.25	0.46	33.25	77.59			
16	Santiam	101.30		2.11	33.52	23.36	20.86	21.45	
17	McKenzie-Bend	19.65				19.65			
18	Willamette	87.00				85.81	1.19		
19	Fremont	157.71			40.51	117.20			
20	Klamath Falls-Lakeview	97.11	3.82	1.26	42.49	38.90	10.64		
21	Green Springs	59.08		5.69	33.86	19.53			
22	Crater Lake	75.55	0.50	0.78	53.47	20.80			
23	Dairy-Bonanza	7.02				7.02			
24	Burns-Crane	28.89		0.04		0.35	28.50		
25	Redwood	42.40			10.83	31.57			
26	Mt. Hood	102.27	11.53	13.71	34.00	43.03			
27	Alsea	59.11			3.19	35.32	20.60		
28	Pendleton-John Day	122.03		1.61	30.10	65.73	17.81		6.78
29	Tualatin Valley	42.28	20.18	22.10					
30	Salem-Dallas	14.92	0.16	8.91	5.85				
31	Albany-Corvallis	11.03	10.10	0.93					
32	Three Rivers	24.74			0.25	24.49			
33	Corvallis-Newport	56.90	0.57		27.67	28.66			
34	Siuslaw	67.45			13.18	54.27			
35	Coos Bay-Roseburg	61.81	0.11	0.31	9.01	52.38			
36	Pendleton-Cold Springs	30.62			5.22	24.89	0.51		
37	Wilson River	54.32	1.82	0.48		25.12		0.28	26.62
38	Oregon Caves	19.70				19.70			
39	Salmon River	45.08	7.25	5.45	32.38				
40	Beaverton-Hillsdale	6.72	4.10	2.62					
41	Ochoco	104.08				66.92	37.16		
42	Sherman	68.88			15.86	43.04	9.98		
43	Monmouth-Independence	2.61		2.61					
44	Wapinitia	40.00			24.03	15.97			
45	Umpqua	50.13	0.59		33.52	16.02			
46	Necanicum	22.13			9.26	12.87			
47	Wolf Creek	74.83	3.59	0.73	20.49	20.13			29.89
48	John Day-Burns	67.05			18.63		48.42		
49	Lakeview-Burns	90.10				90.10			
50	Klamath Falls-Malin	27.14			18.24	8.90			
51	West Portland-Hubbard	17.16	4.07			0.04		0.31	12.74
52	Heppner	84.26				53.94	30.32		
53	Warm Springs	46.05	1.43			14.55		3.83	26.24
	Totals	4,782.94	326.68	525.93	1,110.97	2,247.18	330.49	116.95	124.74

Table No. 27

MILEAGES OF PRIMARY STATE HIGHWAYS

The mileages given in this table are inclusive of mileages within cities and towns.

Hwy. No.	Highway	Total Mileage of Highway	Miles of Different Types of Improvement						
			Concrete Pavement	Bituminous Pavement	Bituminous Macadam	Oiled Surfacing	Unoiled Surfacing	Graded	Unimproved
1	Pacific	229.87	71.35	144.12	14.40				
1E	Pacific, East	113.06	50.75	53.56	8.75				
1W	Pacific, West	116.10	63.71	31.54	20.85				
2	Columbia River	316.63	24.00	168.55	66.37	57.71			
3	Oswego	11.55	7.53	4.02					
4	The Dalles-California	300.09	2.53	5.74	40.23	251.59			
5	John Day	282.92	0.07		37.36	202.09	43.40		
6	Old Oregon Trail	238.81	2.86	6.83	169.14	59.98			
7	Central Oregon	258.59	0.04	0.27	58.83	199.45			
8	Oregon-Washington	35.85		8.07	27.78				
9	Oregon Coast	383.45	33.53	29.78	105.01	204.66		8.29	2.18
10	Wallowa Lake	72.79	0.24	2.95	13.44	56.16			
11	Enterprise-Lewiston	45.28					35.84	8.59	0.85
12	Baker-Homestead	88.67		0.33		48.87	9.34	10.69	19.44
13	Baker-Unity	46.14		0.37		8.82	15.92	21.03	
14	Crooked River	42.48						42.48	
15	McKenzie	111.55	0.25	0.46	33.25	77.59			
16	Santiam	101.30		2.11	33.52	23.36	20.86	21.45	
17	McKenzie-Bend	19.65				19.65			
18	Willamette	87.00				85.81	1.19		
19	Fremont	157.71			40.51	117.20			
20	Klamath Falls-Lakeview	97.11	3.82	1.26	42.49	38.90	10.64		
21	Green Springs	59.08		5.69	33.86	19.53			
22	Crater Lake	75.55	0.50	0.78	53.47	20.80			
23	Dairy-Bonanza	7.02				7.02			
24	Burns-Crane	28.89		0.04		0.35	28.50		
25	Redwood	42.40			10.83	31.57			
26	Mt. Hood	102.27	11.53	13.71	34.00	43.03			
27	Alsea	59.11			3.19	35.32	20.60		
28	Pendleton-John Day	122.03		1.61	30.10	65.73	17.81		6.78
29	Tualatin Valley	42.28	20.18	22.10					
30	Salem-Dallas	14.92	0.16	8.91	5.85				
31	Albany-Corvallis	11.03	10.10	0.93					
32	Three Rivers	24.74			0.25	24.49			
33	Corvallis-Newport	56.90	0.57		27.67	28.66			
34	Siuslaw	67.45			13.18	54.27			
35	Coos Bay-Roseburg	61.81	0.11	0.31	9.01	52.38			
36	Pendleton-Cold Springs	30.62			5.22	24.89	0.51		
37	Wilson River	54.32	1.82	0.48		25.12		0.28	26.62
38	Oregon Caves	19.70				19.70			
39	Salmon River	45.08	7.25	5.45	32.38				
40	Beaverton-Hillsdale	6.72	4.10	2.62					
41	Ochoco	104.08				66.92	37.16		
42	Sherman	68.88			15.86	43.04	9.98		
43	Monmouth-Independence	2.61		2.61					
44	Wapinitia	40.00			24.03	15.97			
45	Umpqua	50.13	0.59		33.52	16.02			
46	Necanicum	22.13			9.26	12.87			
47	Wolf Creek	74.83	3.59	0.73	20.49	20.13			29.89
48	John Day-Burns	67.05			18.63		48.42		
49	Lakeview-Burns	90.10				90.10			
50	Klamath Falls-Malin	27.14			18.24	8.90			
51	West Portland-Hubbard	17.16	4.07			0.04		0.31	12.74
52	Heppner	84.26				53.94	30.32		
53	Warm Springs	46.05	1.43			14.55		3.83	26.24
	Totals	4,782.94	326.68	525.93	1,110.97	2,247.18	330.49	116.95	124.74



STATE OF OREGON
Showing
STATE HIGHWAY SYSTEM
1940

Table No. 28

MILEAGES OF PRIMARY STATE HIGHWAYS BY COUNTIES

The mileages given in this table are inclusive of mileages within cities and towns.

County	Total Mileage in County	Miles of Different Types of Improvement						
		Concrete Pavement	Bituminous Pavement	Bituminous Macadam	Oiled Surfacing	Unoiled Surfacing	Graded	Unimproved
Baker	227.03	0.98	1.61	57.51	78.23	37.54	31.72	19.44
Benton	93.32	18.02	10.59	23.73	40.98			
Clackamas	78.63	33.42	0.37	36.94	2.90			5.00
Clatsop	109.44	18.23	33.30	28.91	26.63		2.37	
Columbia	56.21	2.26	53.14		0.81			
Coos	102.56	21.49	2.40	24.99	53.68			
Crook	82.86				31.28	13.17	38.41	
Curry	90.12	0.37		11.42	78.33			
Deschutes	203.86	0.52	3.45	47.35	148.47		4.07	
Douglas	199.98	28.70	71.16	35.10	65.02			
Gilliam	97.52			7.02	90.50			
Grant	199.34	0.07		19.17	106.43	66.89		6.78
Harney	185.55		0.04	49.38	88.68	47.45		
Hood River	69.44	0.53	25.41	3.37	40.13			
Jackson	149.38	10.34	37.13	77.79	24.12			
Jefferson	71.37			4.74	54.25		9.56	2.82
Josephine	96.58	6.14	28.34	10.83	51.27			
Klamath	303.34	5.87	3.82	100.98	192.67			
Lake	245.53			40.51	194.38	10.64		
Lane	286.62	33.22	17.55	48.76	185.90	1.19		
Lincoln	137.90	1.19		69.87	46.24	20.60		
Linn	117.67	13.89	15.46	28.38	23.36	20.86	15.72	
Malheur	182.47	1.72	1.27	60.67	107.30	11.51		
Marion	47.07	14.91	32.12		0.04			
Morrow	93.39			3.08	70.44	19.87		
Multnomah	118.94	31.45	83.66	3.30				0.53
Polk	58.17	14.81	18.42	23.83	1.11			
Sherman	63.92	0.05		30.68	33.19			
Tillamook	132.68	7.23	11.27	40.69	60.20		6.20	7.09
Umatilla	235.38	0.16	11.62	132.01	80.63	10.96		
Union	85.33	0.24	4.70	38.87	41.52			
Wallowa	83.71		0.96	7.72	29.75	35.84	8.59	0.85
Wasco	189.78	1.43	19.00	38.82	97.13	9.98		23.42
Washington	107.22	14.92	27.32		5.86		0.31	58.81
Wheeler	107.26				83.27	23.99		
Yamhill	73.37	44.52	11.82	4.55	12.48			
Totals	4,782.94	326.68	525.93	1,110.97	2,247.18	330.49	116.95	124.74

Table No. 29

MILEAGES OF SECONDARY STATE HIGHWAYS BY COUNTIES

The mileages given in this table are inclusive of mileages within cities and towns.

County	Total Mileage in County	Miles of Different Types of Improvement						
		Concrete Pavement	Bituminous Pavement	Bituminous Macadam	Oiled Surfacing	Unoiled Surfacing	Graded	Unimproved
Baker	80.21	....	....	....	13.87	41.14	....	25.20
Benton	32.43	....	0.13	....	7.14	25.16	....	....
Clackamas	82.02	11.31	18.04	4.90	38.34	9.28	....	0.15
Clatsop	37.85	10.37	3.85	0.98	22.65	....	....	....
Columbia	42.09	....	1.25	4.68	33.18	2.98	....	....
Coos	55.85	0.90	0.97	....	18.98	29.52	....	5.48
Crook	80.81	....	....	....	....	59.56	21.25	....
Curry	6.30	....	....	....	....	5.00	....	1.30
Deschutes	53.42	....	0.56	....	24.76	3.85	24.25	....
Douglas	96.53	....	....	....	31.60	58.48	6.45	....
Gilliam	41.48	....	0.14	....	1.73	20.48	8.02	11.11
Grant	41.33	....	....	....	5.35	20.98	2.56	12.44
Harney	122.12	....	....	....	....	23.18	49.04	49.90
Hood River	21.86	3.88	0.31	0.86	8.71	8.10	....	....
Jackson	99.46	....	17.17	....	56.68	0.82	8.32	16.47
Jefferson	19.37	....	....	....	....	8.16	6.50	4.71
Josephine	47.75	....	1.05	....	30.50	16.20	....	....
Klamath	106.75	....	0.61	2.14	49.73	16.87	7.00	30.40
Lake	46.21	....	....	....	....	21.42	13.72	11.07
Lane	141.12	1.84	12.84	3.35	7.15	97.12	....	18.82
Lincoln	44.31	....	....	....	....	44.31	....	....
Linn	56.95	0.04	0.48	....	39.99	16.44	....	....
Malheur	202.19	....	....	....	15.78	42.06	103.45	40.90
Marion	114.90	0.25	65.75	....	35.18	2.66	0.43	10.63
Morrow	76.41	....	....	....	25.87	36.90	....	13.64
Multnomah	15.21	9.07	2.76	....	....	....	3.38	....
Polk	57.56	0.17	3.62	....	42.30	11.47	....	....
Sherman	40.57	....	....	....	....	24.87	5.84	9.86
Tillamook	19.20	1.70	0.10	....	5.13	6.81	3.02	2.44
Umatilla	116.80	0.05	0.29	....	98.66	17.80	....	....
Union	81.79	....	....	....	43.68	31.69	2.60	3.82
Wallowa	37.06	....	....	....	6.16	8.08	22.82	....
Wasco	31.98	....	....	....	....	22.70	5.48	3.80
Washington	72.32	0.35	1.60	11.71	41.17	17.49	....	....
Wheeler	61.28	....	....	....	0.60	35.12	3.06	22.50
Yamhill	65.00	8.66	2.80	....	45.88	7.66	....	....
Totals 1940	2,348.49	48.59	134.32	28.62	750.77	794.36	297.19	294.64

Table No. 30

MILEAGES OF SECONDARY STATE HIGHWAYS

The mileages given in this table are inclusive of mileages within cities and towns.

Hwy. No.	Highway	Total Mileage of Highway	Miles of Different Types of Improvement						
			Concrete Pavement	Bituminous Pavement	Bituminous Macadam	Oiled Surfacing	Unoiled Surfacing	Graded	Unimproved
102	Nehalem	89.82	10.37	5.93	12.18	52.91	8.43	—	—
110	Mist-Clatskanie	11.95	—	—	—	11.95	—	—	—
120	Swift	2.93	2.08	0.85	—	—	—	—	—
121	Lombard Street	0.71	0.71	—	—	—	—	—	—
122	Vancouver Avenue	0.50	0.50	—	—	—	—	—	—
123	Northeast Portland	4.79	—	1.41	—	—	—	3.38	—
130	Little Nestucca	9.40	—	—	—	—	3.94	3.02	2.44
131	Netarts	9.80	1.70	0.10	—	5.13	2.87	—	—
140	Hillsboro-Silverton	52.30	0.35	32.23	5.19	4.25	10.28	—	—
141	Beaverton-Aurora	20.70	0.45	5.42	—	14.68	—	—	0.15
142	Farmington	9.92	—	—	—	5.17	4.75	—	—
143	Scholls	12.46	—	—	—	12.46	—	—	—
150	Salem-Dayton	20.10	0.03	—	—	20.07	—	—	—
151	Yamhill-Newberg	11.65	0.80	0.58	—	5.60	4.67	—	—
152	Three Mile Lane	8.35	7.83	0.52	—	—	—	—	—
153	Bellevue-Hopewell	14.89	—	—	—	14.89	—	—	—
154	Lafayette	5.75	—	—	—	5.75	—	—	—
155	Amity-Dayton	7.25	—	—	—	7.25	—	—	—
160	Cascade	43.90	16.27	13.69	—	13.94	—	—	—
161	Woodburn-Sandy	47.06	0.62	7.42	4.90	22.18	11.94	—	—
162	North Santiam	33.13	—	15.50	—	6.57	—	0.43	10.63
163	Silver Creek Falls	40.83	—	12.50	—	28.33	—	—	—
180	Eddyville-Blodgett	18.92	—	—	—	—	18.92	—	—
181	Siletz	31.86	—	—	—	—	31.86	—	—
190	Kings Valley	26.03	—	—	—	16.53	9.50	—	—
191	Dallas-Kings Valley	10.73	—	0.41	—	5.12	5.20	—	—
192	Dallas-Coast	15.19	—	—	—	15.19	—	—	—
193	Independence	6.38	0.17	3.21	—	3.00	—	—	—
200	Territorial	46.54	—	—	3.35	—	43.19	—	—
201	Alsea-Deadwood	27.40	—	—	—	—	27.40	—	—
202	Tampico-Lewisville	5.46	—	—	—	—	5.46	—	—
210	Corvallis-East Side	10.16	—	0.22	—	9.74	0.20	—	—
211	Albany-Lyons	25.17	0.04	—	—	8.89	16.24	—	—
212	Halsey-Sweet Home	21.75	—	0.39	—	21.36	—	—	—
220	Eugene-Swisshome	36.75	—	—	—	0.70	26.55	—	9.50
221	Fox Hollow	15.50	1.14	—	—	—	5.86	—	8.50
222	Springfield-Creswell	15.57	—	—	—	6.45	9.12	—	—
223	Junction City-Eugene	13.54	0.70	12.84	—	—	—	—	—
224	W. 6th St.-W. 11th St.	0.82	—	—	—	—	—	—	0.82
230	Tiller-Trail	49.99	—	—	—	14.69	24.98	10.32	—
231	Elkton-Sutherlin	28.50	—	—	—	—	28.50	—	—
232	Crater Lake-North	5.29	—	—	—	5.29	—	—	—
233	West Diamond Lake	23.89	—	—	—	23.89	—	—	—
240	Cape Arago	14.60	0.36	0.22	—	10.79	3.23	—	—
241	Coos River	19.10	0.39	—	—	5.34	7.89	—	5.48
242	Powers	18.55	0.15	—	—	—	18.40	—	—
243	Empire-Marshfield	3.60	—	0.75	—	2.85	—	—	—
250	Cape Blanco	5.80	—	—	—	—	4.50	—	1.30
251	Port Orford	0.50	—	—	—	—	0.50	—	—
260	Rogue River Loop	22.15	—	1.05	—	7.30	13.80	—	—
261	Williams	25.60	—	—	—	23.20	2.40	—	—
270	Little Butte	31.82	—	—	—	10.08	0.82	4.45	16.47
271	Sams Valley	17.20	—	—	—	17.20	—	—	—

Table No. 30—Continued

MILEAGES OF SECONDARY STATE HIGHWAYS

Hwy. No.	Highway	Total Mileage of Highway	Miles of Different Types of Improvement						
			Concrete Pavement	Bituminous Pavement	Bituminous Macadam	Oiled Surfacing	Unoiled Surfacing	Graded	Unimproved
272	Medford-Provolt	25.36	—	9.55	—	15.81	—	—	—
273	Siskiyou	7.62	—	7.62	—	—	—	—	—
281	Hood River	18.36	2.96	0.31	0.86	7.93	6.30	—	—
282	Odell	3.50	0.92	—	—	0.78	1.80	—	—
290	Shearars Bridge	28.97	—	—	—	—	19.33	5.84	3.80
291	Shaniko-Fossil	43.65	—	—	—	0.60	22.99	7.78	12.28
300	Wasco-Heppner	91.69	—	0.14	—	7.54	41.38	8.02	34.61
301	Fulton Canyon-Wasco	1.50	—	—	—	—	1.50	—	—
320	Lexington-Echo	39.56	—	—	—	39.56	—	—	—
321	Heppner-Spray	41.00	—	—	—	—	41.00	—	—
330	Weston-Elgin	41.39	—	0.10	—	41.29	—	—	—
332	Sunnyside-Umapine	7.25	—	—	—	5.70	1.55	—	—
333	Hermiston	17.54	—	—	—	17.54	—	—	—
334	Athena-Holdman	16.44	—	0.19	—	—	16.25	—	—
335	Havana-Helix	8.90	0.05	—	—	8.85	—	—	—
336	Airport	1.14	—	—	—	1.14	—	—	—
337	Stanfield-Pendleton	24.43	—	—	—	24.43	—	—	—
340	Medical Springs	42.67	—	—	—	23.27	19.40	—	—
341	Starkey	17.00	—	—	—	—	10.58	2.60	3.82
342	Cove	22.16	—	—	—	14.49	7.67	—	—
350	Little Sheep Creek	30.60	—	—	—	—	7.78	22.82	—
351	Joseph-Wallowa Lake	6.46	—	—	—	6.16	0.30	—	—
360	Warm Springs	30.07	—	—	—	—	15.34	10.02	4.71
370	O'Neil	17.86	—	—	—	—	17.86	—	—
371	Powell Butte	17.92	—	—	—	—	7.70	10.22	—
372	Century Drive	11.79	—	0.56	—	11.23	—	—	—
373	Cline Falls	10.13	—	—	—	—	—	10.13	—
374	Tumalo-Deschutes	3.90	—	—	—	—	—	3.90	—
375	Redmond-Bend	13.53	—	—	—	13.53	—	—	—
380	Crooked River-Paulina	48.40	—	—	—	—	30.67	17.73	—
390	Service Creek-Mitchell	24.85	—	—	—	—	13.87	0.76	10.22
401	Beach Creek	5.35	—	—	—	5.35	—	—	—
402	Kimberly-Long Creek	35.98	—	—	—	—	20.98	2.56	12.44
410	Sumpter Valley	22.62	—	—	—	—	19.59	—	3.03
411	Haines-Anthony	12.60	—	—	—	—	11.70	—	0.90
412	Robinette - Homestead	25.16	—	—	—	—	3.89	—	21.27
420	Midland	5.87	—	—	2.14	—	3.73	—	—
421	Klamath Lake	49.70	—	0.61	—	6.10	8.59	7.00	27.40
422	Chiloquin	10.88	—	—	—	10.88	—	—	—
423	Lower Klamath	7.55	—	—	—	—	4.55	—	3.00
424	Sand Creek	4.25	—	—	—	4.25	—	—	—
425	E. Diamond Lake	14.72	—	—	—	14.72	—	—	—
426	Hatfield	2.44	—	—	—	2.44	—	—	—
427	Klamath Agency-Modoc Point	12.66	—	—	—	12.66	—	—	—
431	Warner	46.21	—	—	—	—	21.42	13.72	11.07
440	Frenchglen	62.00	—	—	—	—	12.10	—	49.90
441	Diamond Valley	36.22	—	—	—	—	11.08	25.14	—
442	Rome-Princeton	53.90	—	—	—	—	—	23.90	30.00
450	Nyssa-Adrian	20.95	—	—	—	13.00	7.95	—	—
451	Vale-West	10.70	—	—	—	—	10.70	—	—
452	Adrian-Parma	2.78	—	—	—	2.78	—	—	—
453	Adrian-Arena	3.22	—	—	—	—	3.22	—	—
454	Adrian-Caldwell	4.40	—	—	—	—	4.40	—	—
455	Homedale Spur	1.95	—	—	—	—	1.95	—	—
456	I. O. N.	117.87	—	—	—	—	13.84	98.21	5.82
458	Jordan Valley	10.32	—	—	—	—	—	5.24	5.08
	Totals 1940	2,348.49	48.59	134.32	28.62	750.77	794.36	297.19	294.64

Table No. 31

MILEAGES OF ROADS OTHER THAN STATE HIGHWAYS

The mileages given here include all local and county roads, Indian service roads, National Park roads and forest development roads. They include both rural and city mileages. They do not include mileages of any primary or secondary state highways. The data have been compiled from mileages reported by the State-wide Highway Planning Survey.

County	Total Mileage in County	Miles of Different Types of Improvement					
		Concrete Pavement	Bituminous Pavement	Oiled Surfacing	Unoiled Surfacing	Graded	Only Unimproved
Baker	1,899	1	4	3	406	1,025	460
Benton	427	8	2	6	339	63	9
Clackamas	1,705	88	141	105	1,087	168	116
Clatsop	313	27	25	8	200	50	3
Columbia	486	1	6	1	424	39	15
Coos	591	21	4	3	409	49	105
Crook	1,359				65	712	582
Curry	239			1	150	22	66
Deschutes	2,449		5	17	143	939	1,345
Douglas	1,452	13	8	18	814	438	161
Gilliam	557				88	364	105
Grant	1,675			5	115	998	557
Harney	2,388			2	117	1,546	723
Hood River	376	2	4		158	18	194
Jackson	1,717	6	23	32	747	519	390
Jefferson	954				111	461	382
Josephine	813	2	2	2	314	265	228
Klamath	2,948	7	14	55	346	697	1,829
Lake	2,901			4	95	609	2,193
Lane	1,530	33	25	105	898	310	159
Lincoln	394				173	72	149
Linn	1,230	1	19	20	1,052	104	34
Malheur	2,600		1	1	383	283	1,932
Marion	1,330	58	165	5	1,008	56	38
Morrow	1,414				272	662	480
Multnomah	1,559	195	518	329	451	28	38
Polk	522	3	22	5	443	15	34
Sherman	502			2	95	238	167
Tillamook	293	7	2	9	230	35	10
Umatilla	2,332		18		625	1,019	670
Union	1,254	1	10		242	702	299
Wallowa	1,379		3		169	756	451
Wasco	1,493	1	9	27	191	993	272
Washington	1,071	6	25	55	860	79	46
Wheeler	560				76	284	200
Yamhill	895	6	17	1	684	108	79
Totals	45,607	487	1,072	821	13,980	14,726	14,521

LIST OF PERSONS RENDERING PROFESSIONAL OR SPECIAL SERVICES

July 1, 1938, to June 30, 1940

Name and Address	Nature of Service	Compensation
Barnett, Harold, Pendleton	Expert witness fees	$ 20.00
Beam, Owen, Albany	Land appraisal	10.00
Brogoitti, S. E., Helix	Land appraisals	100.00
Brown & Brown, Portland	Land appraisals	1,082.56
Burdette, Dr. Leslie R., Salem	Visual standards service	50.00
Central Inspection Bureau, Portland	Steel inspection	953.42
Cooke, Dr. Clinton T., Portland	Visual standards service	50.00
Curl, C. C., Pendleton	Land appraisals	150.00
Douglas, Thos., Lime	Inspection of lime and cement	50.86
Dryer, H. A., Portland	Land appraisals and expert witness fees	1,225.00
Fish, Leon H., Albany	Land appraisals	20.00
Fisher, Ben S., Washington, D. C.	Legal services in connection with radio installation	100.00
Gerking, George R., Athena	Expert witness fees	24.40
Gordon, Herbert, Salem	Land appraisals	50.00
Hoflich, Fred, Albany	Land appraisals	25.00
Holbrook, M. C., Portland	Land appraisals	100.00
Howland, A. C., Oregon City	Land appraisals and expert witness fees	90.00
Hunt Co., Robert W., Chicago, Illinois	Steel inspection	335.51
Ide, W. G., Hillsboro	Land appraisals and expert witness fees	277.30
Johnson, G. H., Portland	Land appraisals	5.00
Kiehle, Dr. Frederich A., Portland	Visual standards service	50.00
Laber, J. B., Portland	Land appraisals and expert witness fees	650.00
Lieuallen, L. L., Pendleton	Land appraisals	100.00

Lorenz, Dr. John E., Portland	Visual standards service	50.00
Maloney, Judge J. W., Portland	Expert witness fees	56.20
McGowan, F. C., Portland	Land appraisals	100.00
McIntyre, A. C., Pendleton	Legal services	100.00
McKenna, Coe, Portland	Land appraisals and expert witness fees	474.00
McKinley, James T., Portland	Culvert inspection	683.50
Miller, Alden E., Oregon City	Legal services	858.91
Moylan, J. E., Portland	Cement and oil inspection	1,688.67
Pankey, T. E., Gold Hill	Cement inspection	1,213.10
Patterson, P. L., Hillsboro	Legal service	500.00
Perrine, Fred, Salem	Expert witness fees	15.00
Person, Alvin W., Portland	Court reporting	5.00
Rawson, R. H., Portland	Piling and lumber inspection	104.49
Reed, Henry C., Portland	Land appraisals and expert witness fees	650.00
Salem Realty Co., Salem	Land appraisals	135.00
Sawtell, Goldrainer & Co., Portland	Revision of department accounting system	*12,542.48
Scellars, E. J., Salem	Land appraisals	49.50
Sears, Dr. James L., Salem	Visual standards service	50.00
Soule, N. C., Portland	Land appraisals and expert witness fees	650.00
Starkweather, H. G., Portland	Expert witness fees	130.00
Stewart, B. H., Oregon City	Land appraisals and expert witness fees	67.50
Thompson, J. R., Pendleton	Expert witness fees	21.80
Vaught, J. T., Lime	Cement inspection	346.62

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* Includes expense allowance of $38.85.

LIST OF EMPLOYES OF STATE HIGHWAY COMMISSION

The following is a list of the employes of the State Highway Commission as of June 30, 1940, together with the amounts of compensation and expense allowance paid to each during the two-year period from July 1, 1938 to June 30, 1940.

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Abbott, Julian R., working foreman	$3,229.80	$	$
Ackley, Wayne C., truck driver	2,459.00		
Acuff, Hersil M., power mower operator	2,328.18		
Adams, Alveron A., section foreman helper	2,513.30		
Adams, Bert F., stockman	2,760.00		
Adams, George C., welder	2,342.25		
Adams, Howard M., chainman	1,348.39		
Adams, W. Hugh, photostat operator	3,766.00		
Adams, John D., power mower operator	2,008.85		
Adams, James Glenn, section foreman helper	2,616.27		
Aday, Alvin H., truck driver	1,310.30		
Adlard, I. Richard, material checker	1,504.83		
Adlard, John R., laboratory assistant	3,600.00	15.35	
Agee, James H., raker	1,074.27		
Ahalt, Harry K., blacksmith	2,556.75		
Ahlberg, Clarence G., rollerman	1,463.14		
Akins, William L., laborer	2,034.50		
Alderson, Clair H., laborer	200.46		
Aldrich, E. B., commissioner		302.85	182.50
Alery, Marie, stenographer	2,383.33		
Alexander, Maurice S., truck driver	851.10		
Allen, Benjamin F., section foreman helper	2,378.35		
Allen, Ernest C., motor grader operator	161.35		
Allen, Guy M., assistant carpenter	120.35		
Allen, James Willard, laborer	189.00		
Allen, Marvelle W., draftsman	4,080.00	2.00	
Allen, Roy E., raker	314.09		
Alling, George W., estimate clerk	3,360.00		
Allstott, Clifford M., mechanic	3,200.86	104.00	
Alvick, Roy, engineer assistant	4,200.00	28.20	
Ames, Virgil V., stake artist	1,010.32	15.25	
Anderson, Clifford F., bridgeman	438.05	5.70	
Anderson, Geo. G., district maintenance officeman	3,600.00		
Anderson, Gilbert D., assistant foreman	2,822.00		
Anderson, Harold C., dist. maint. office clerk	3,600.00	1.35	
Anderson, James A., truck driver	2,092.10		
Anderson, Laurence B., laborer	1,647.84		
Anderson, Lynn A., laborer	2,040.28		
Anderson, Myron H., street foreman	2,809.22		
Anderson, Norman, sign shop clerk	2,640.00	16.75	
Anderson, Orin J., flagman	217.13		
Anderson, Richard D., transit-rodman	3,043.33	202.80	
Anderson, Rufus H., laborer	95.00		
Andrews, Lynn C., section foreman	2,810.36	10.85	
Angstead, Chas. H., truck driver	171.80		
Ansell, Lewis J., laborer	677.50		
Anundson, Howard M., draftsman	3,150.00		
Appelgate, Ralph C., assistant timekeeper	1,924.92	152.50	
Apperson, Robert C., street inspector	1,046.29		
Applegate, Ralph F., assistant foreman	3,059.54		
Apt, Carrol, truck driver	1,186.38		
Archer, Alfred W., laborer	139.75		
Archibald, Alfred E., sign department	4,200.00	649.05	
Archibald, Fred O., chainman	183.87	2.25	
Arenz, Richard F., shovel operator	18.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Armstrong, Chester H., dist. maint. supt.	$6,000.00	$ 401.95	$
Armstrong, Clarence B., boilerman	2,172.14		
Arnold, Joe, shovel operator	203.00		
Arnson, Warren H., laborer	203.40		
Aronson, Edward N., mechanic	3,223.40		
Aronson, George O., watchman	2,522.58		
Aronson, Howard T. (or Harold T.), shoveler	516.89		
Aronson, Walter J., flushcoater	1,231.87		
Asburry, Raymon D., head chainman	2,520.00	14.15	
Asher, Clarence S., watchman	2,760.00		
Ashley, Milton, pull grader operator	2,112.50		
Atherton, Norman S., laborer	146.00		
Aubert, George L., truck driver	810.33		
Ausland, Willis M., transitman	4,080.00		
Avery, Clifford K., paint machine operator	1,281.45		
Ayres, Russell V., material inspector	2,197.92		
Bacon, Henry M., chainman	808.39	9.35	
Badley, Robert H., section foreman helper	2,676.70		
Bafford, Howard D., laborer	175.50		
Bailey, Arthur L., truck driver	682.10		
Bailey, Leeds C., laborer	20.00		
Bain, George W., material checker	116.13	.80	
Bainter, Emmett O., section foreman	3,120.00		
Baird, David J., truck driver	228.30		
Baird, Esther E., stenographer	2,245.16		
Bairey, Pearl, clerk	2,618.00		
Bagnall, George W., mechanic draftsman	4,180.00		
Baker, George C., transitman	3,908.89	12.35	4.75
Baker, George R., supervising mechanic	860.55	17.60	
Baker, Henry B., truck driver	1,468.25		
Baker, Herbert R., truck driver	1,755.31		
Baldock, R. H., state highway engineer	14,400.00	590.60	
Balgaard, Orville M., truck driver	2,153.45		
Ball, Raymond L., laborer	82.00		
Ballard, Kenneth M., laborer	129.71		
Bandy, John C., draftsman	4,080.00		
Bangert, J. Brownie, bridgeman	2,551.00		
Banick, A. A., laborer	2,016.04		
Banks, Harold R., chainman	200.00		
Bany, Paul J., bridge foreman	3,960.00		
Barbee, Daniel Jay, transitman	4,080.00		
Barker, John H., truck driver	10.45		
Barker, Milo H., raker	2,428.55		
Barkham, Elbert L., bridgeman	1,698.80		
Barklow, Lyle E., bridgeman	2,409.35		
Barkwell, Bryant Lee, mechanic	3,236.40	9.20	
Barlow, James E., truck driver	2,205.50		
Barnes, Herbert L., truck driver	243.40		
Barnes, Lloyd E., trimmer	2,863.33		
Barnhart, George A., levelman	3,046.77	21.90	
Barnum, Bruce W., laborer	815.95		
Barnum, Gordon L., laborer	97.20		
Barnum, Robert P., timekeeper	2,623.20	2.70	
Barrett, Harry E., material inspector	1,957.91	14.80	23.30
Barsness, George A., material inspector	747.70	4.15	5.30
Bartel, Kenneth E., street inspector	2,940.32		
Bartell, Ben J., electrician	3,253.00		
Bartlett, Clyde E., laborer	2,043.10		
Bartlett, James P., pump attendant	1,027.66		
Barton, Virgil J., laborer	242.09		
Bashaw, Wendell L., laborer	172.25		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Basler, Roy V., bridgeman	$2,377.50	$	$
Bassett, Paul M., bridgeman	67.80		
Bates, Alfred W., truck driver	1,402.62		
Batteen, Vernon H., truck driver	2,183.90		
Batzner, Leonard B., spotting foreman	2,603.80		
Baumgartner, Nick, laborer	1,821.00		
Baxter, Herman M., plant foreman	2,666.14		
Baxter, L. Darwin, section foreman helper	2,216.68		
Beach, Dorothy A., calcu. machine operator	700.00		
Beachy, Eli, raker	990.66		
Beakey, John, manager planning survey	8,640.00	395.70	
Beal, Milton F., section foreman helper	2,667.70		
Beall, Carl W., miner	2,013.80		
Beam, Guy, section foreman helper	2,130.70		
Beardsley, Marion C., draftsman	3,532.26		
Beck, Ed J., painter	68.60		
Beck, Oscar J., caretaker	2,433.06		
Becker, Alfred E., truck driver	2,010.75		
Becker, Otto R., laborer	1,728.25		
Beckwith, Morris E., section foreman helper	1,597.38	6.50	
Beddingfield, James A., ass't. bridge foreman	3,270.00		
Bedingfield, John L., laborer	575.00		
Bedingfield, Laurel I., laborer	257.94		
Bedingfield, Thomas A., laborer	1,789.30		
Bedortha, William B., truck driver	1,687.72		
Bedwell, Emery C., caretaker	1,438.63		
Beede, Fred B., laborer	1,493.50		
Beeson, James I., truck driver	2,287.93		
Beisell, George, kettleman	207.15		
Bell, Charles, flagman	886.79		
Bell, James R., laborer	1,833.95		
Bell, Kirk V., chainman	287.01		
Bellamy, John W., section foreman	2,120.00		
Beller, Darrel L., laborer	40.00		
Beller, Merle E., laborer	345.00		
Bellus, Leslie V., mechanic	3,235.00		
Belshee, Benjamin Frank, street inspector	1,733.28	4.20	
Bender, Mildred J., stenographer	1,824.68		
Benedict, Albert V., resident engineer	4,611.67	3.20	
Benford, Frank S., truck driver	737.10		
Benjamin, Roy L., raker	1,226.10		
Bennett, Clarence G., laborer	2,047.90		
Bennett, Ernest B., laborer	312.90		
Bennett, Robert D., truck driver	750.88		
Benson, Harry G., right of way agent	5,375.00	975.30	
Bentass, Adolph I., shoveler	287.25		
Berg, Paul P., laborer	583.50		
Bergstrom, Julius H., bridgeman	1,424.00		
Berthold, Max I., flagman	600.29		
Betzer, Grover R., laborer	689.10	248.25	
Betzer, Ray, head price clerk	3,600.00	961.00	
Betzer, Reynold R., signal foreman	3,360.00		
Bewley, Carl O., power mower operator	2,204.41		
Bickford, Nathan, stakeman	60.00		
Bickmore, Earl G., resident engineer	6,000.00	174.05	
Biehler, Bert F., plant foreman	2,043.00		
Biescke, Fred, carpenter	2,712.85		
Bigham, Simon P., stone mason	512.80		
Bihl, William D., stockkeeper	2,777.29		
Billings, George L., laborer	2,057.25		
Binder, Irl R., laborer	2,014.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Bishop, J. N., maintenance engineer	10,800.00	$ 541.05	$ ....
Bissell, Rex I., street inspector	3,600.00	23.25	....
Bisset, Ralph R., section foreman helper	2,183.40	....	....
Bixby, Vere H., laborer	2,023.85	....	....
Black, Chas. I., laborer	865.15	....	....
Black, Wm. A., shoveler	988.83	....	....
Blaisdell, Dorothy E., clerk	2,160.00	....	....
Blanchard, Charles W., laborer	10.50	....	....
Blankenbickler, Al., laborer	859.40	....	....
Blessing, Wm. P., laborer	146.48	....	....
Bliss, Fred A., section foreman helper	2,393.95	....	....
Bliven, Howard, relief watchman	2,588.25	....	....
Blomberg, Alfred R., mechanic	2,844.37	13.85	....
Blomberg, Frank J., rollerman	677.05	....	....
Bloomberg, Carl W., power mower operator	1,786.65	22.70	....
Boardman, Kenneth Y., head chainman	2,520.00	....	....
Boardman, S. H., parks superintendent	7,200.00	956.10	....
Bodewig, Edward J., truck driver	2,414.73	11.10	....
Bodewig, Jake C., laborer	1,375.00	....	....
Boeche, Wm. G., truck driver	2,274.93	....	....
Boje, O. H., traveling park foreman	605.00	....	....
Boldt, LeRoy, general foreman	3,842.98	....	....
Bolger, Howard N., rollerman	1,707.34	....	....
Bond, J. Ronald, Jr., carpenter	2,852.08	....	....
Bones, Walter J., section foreman helper	2,642.90	....	....
Bonham, John H., truck driver	2,196.70	....	....
Bonnett, Chas. A., assistant engineer	4,200.00	25.05	....
Booth, Eugene M., locating engineer	6,000.00	30.60	....
Booth, James W., laborer	147.04	....	....
Borah, Melvin E., section foreman helper	2,619.50	....	....
Borgaard, Alfred C., motor grader operator	2,443.80	5.25	....
Borgaard, Fred O., section foreman helper	2,516.15	....	....
Boring, William C., pump attendant	2,247.57	....	....
Bostrack, Russell M., truck driver	2,157.10	....	....
Boswell, Abraham Chester, laborer	547.50	....	....
Boulier, F. Loren, sign painter	2,586.68	....	....
Bowen, Audrey L., laborer	1,873.45	....	....
Bowles, Theodore J., laborer	1,740.98	....	....
Bowman, Harold, laborer	71.50	....	....
Bowman, Roger, assistant carpenter	2,306.45	....	....
Bowne, William E., head chainman	2,093.65	....	....
Boyer, Fred E., shovel operator	3,288.80	4.90	....
Boyer, James Carl, bridgeman	2,297.30	1.00	....
Boyer, Paul R., tamperman	569.65	....	....
Boyes, Manual J., laborer	187.50	....	....
Boyle, Ralph C., laborer	120.35	....	....
Braden, Hillis R., oiler driver	1,265.60	2.70	....
Bradford, Darrel T., carpenter	2,844.80	157.55	....
Bradford, Miles T., operator	2,736.28	....	....
Bradley, Duane E., kettleman	223.76	....	....
Brady, Joe E., laborer	1,656.00	....	....
Brady, Melvin D., shoveler	1,720.40	....	....
Bragg, Ralph H., raker	2,465.90	....	....
Bramblette, Richard, laborer	1,950.05	....	....
Bramlett, Clyde J., section foreman helper	2,495.35	....	....
Bramlette, Jeptha C., laborer	1,987.00	....	....
Brannon, Darious, rollerman	2,278.80	....	....
Brannon, McKinley, laborer	152.00	....	....
Branson, Averill P., draftsman	4,425.00	....	....
Breding, Carl C., truck driver	2,225.85	....	....
Breedlove, Delbert A., sign crew helper	1,968.95	351.40	....

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Bressler, George A., mechanic	$3,246.20	$ 10.05	$ ....
Bressler, Harold O., rollerman	1,090.68	....	....
Breuser, Otto W., laborer	2,107.50	....	....
Brewer, Berry, section foreman helper	2,637.38	....	....
Bright, Harry H., machinist	2,246.40	....	....
Bristlin, Fred G., motor grader operator	2,266.65	....	....
Bristow, Ralph E., section foreman	3,445.58	....	....
Broadwater, Kenneth F., assistant office man	1,365.55	....	....
Broadwell, Harry C., resident engineer	5,850.00	....	....
Brock, Walter E., section foreman helper	2,506.75	2.90	....
Brockschink, F. Roy, Jr., field assistant	9.00	2.15	....
Brollier, Erwin J., section foreman helper	2,525.90	....	....
Bromley, James G., dist. maint. superintendent	6,000.00	282.20	....
Brookhart, Stanley H., laborer	1,394.00	....	....
Brookhart, Walter B., laborer	1,911.00	....	....
Brooks, Paul E., laborer	1,613.50	....	....
Broussard, Harold L., truck driver	1,054.50	....	....
Brown, Anthony N., computor	3,040.16	....	....
Brown, Charles W., raker	2,140.96	....	....
Brown, Chris C., chainman	900.00	16.40	5.40
Brown, Daryl, load spotter	649.60	....	....
Brown, Donald E., bridgeman	2,861.20	4.00	....
Brown, Frank R., material checker	640.76	3.40	....
Brown, James A., rollerman	571.94	....	....
Brown, James M., motor grader operator	2,147.60	....	....
Brown, Leo. R., laborer	179.20	....	....
Brown, Percy M., watchman	1,150.12	....	....
Brown, Ray E., section foreman helper	2,305.05	....	....
Brown, Robert J., laborer	1,214.38	....	....
Browning, Robert C., section foreman	2,754.70	10.40	....
Browning, Russell M., laborer	302.00	....	....
Bruijn, John, laborer	1,545.50	....	....
Brunell, Leo W., mechanic	3,386.60	740.30	....
Brunswig, Miles A., laborer	195.78	....	....
Buchanan, Alvin T., head chainman	2,670.97	24.35	....
Buchanan, Grant T., bridgeman	2,443.20	....	....
Bucholtz, Lester L., bridgeman	2,337.55	....	....
Buchholz, Martin, watchman	153.43	....	....
Bucknum, William H., section foreman	3,120.00	....	....
Bue, Palmer W., research assistant	1,348.39	14.30	22.04
Buell, Harold D., truck driver	1,444.48	5.80	....
Buell, Otis H., laborer	1,008.75	....	....
Bull, Barney L., section foreman	3,064.18	....	....
Bunch, Sam S., section foreman	3,120.00	....	....
Bundy, Robert F., laborer	489.95	....	....
Bunting, James E., laborer	2,109.30	....	....
Buoy, Clarence G., laborer	639.00	....	....
Burch, John T., resident engineer	6,000.00	....	....
Burch, Lyle V., truck driver	2,232.20	....	....
Burch, Roy R., traffic line foreman	3,600.00	3.30	....
Burdett, Willard H., draftsman	3,620.00	7.40	....
Burkholder, Edw. W., bridgeman	2,278.20	....	....
Burns, Jerald B., chainman	896.77	....	....
Burt, Arthur M., foreman	3,452.83	....	....
Burtis, Henry W., watchman & janitor	2,520.00	....	....
Burton, C. Ray, truck driver	2,057.58	11.40	....
Burton, Edwin K., Jr., laborer	343.00	....	....
Burton, Harry J., truck driver	2,218.90	....	....
Burton, Jn. H., laborer	353.00	....	....
Burton, Murlin F., laborer	182.13	....	....
Burton, Sam R., chainman	970.00	19.35	....

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Busch, Herman G., pitman	$ 739.00	$	$
Busch, Vernal F., plant foreman	1,474.33	22.55	
Bush, Edw. C., shoveler	270.63		
Bush, Walter, tabulating machine operator	141.85		
Bushway, C. W., laborer	939.00		
Buswell, Ed. P., truck driver	2,213.10		
Buswell, Ellis R., truck driver	1,555.10		
Buttervich, Vincent F., street inspector	3,030.00	53.90	
Button, Douglas A., chainman	1,338.55	6.25	
Butts, Chester C., boilerman	2,078.75		
Byers, Alva J., section foreman helper	2,317.20		
Byers, Berkrem A., truck driver	627.10		
Byers, Victor S., paintman	903.50		
Bynon, George E., inventory clerk	4,070.00	89.05	
Byrd, William Alton, bridgeman	1,620.30		
Cady, Jack, flagman	252.57		
Cain, Chas. T., section foreman	3,120.00		
Cairns, John J., gate tender	2,072.48		
Calaba, Jerry, watchman	2,116.06		
Caldwell, Vernon F., section foreman	3,048.71		
Calkins, Earl A., computor	2,713.86	8.00	
Callahan, Timothy L., laborer	1,976.00		
Callahan, Wilda, clerk	2,160.00		
Callison, Rufus G., blacksmith	2,967.15		
Cameron, David A., laborer	194.96		
Cameron, Keith., assistant timekeeper	2,336.48		
Cameron, Malcolm S., blue printer	2,990.00		
Cameron, Thomas A., laborer	86.00		
Cameron, Thomas V., raker	2,139.96		
Campbell, Chas. E., timekeeper	2,586.83		
Campbell, Clarence M., carpenter	2,732.27		
Campbell, Dale J., laborer	1,997.50		
Campbell, Frank H., section foreman helper	2,504.45		
Campbell, Joe D., leverman	114.45		
Campbell, Joseph K., shop superintendent	4,440.00		
Campbell, Lenore A., clerk	2,160.00		
Campbell, Margaret A., stenographer	1,452.35		
Campbell, Wm. A., section foreman	3,120.00		
Cannon, Clarence D., office engineer	5,000.00	39.35	
Cannon, Everett E., foreman	3,600.00		
Cantril, Jesse A., trav. pull grader operator	2,399.70		
Cantril, Odist, section foreman	3,120.00		
Card, Roger E., chainman	2,135.16		
Carder, Alva B., section foreman	3,120.00		
Carkin, Earle T., magnet operator	1,741.73	1,299.00	
Carkin, Vernon E., chainman	1,253.33		
Carleton, James C., resident bridge inspector	4,195.00		
Carleton, Wayne, truck driver	900.20		
Carlin, Emery L., section foreman helper	2,616.65	9.85	
Carlin, James H., yardman	2,370.90	142.50	
Carlin, J. Henry, section foreman helper	2,667.60		
Carlson, Alfred B., bridgeman	1,373.10		
Carlson, Charles T., material checker	116.13	2.00	
Carlson, Gus G., laborer	2,024.50		
Carnine, Harold K., truck driver	317.03		
Carns, Clarence E., section foreman	3,120.00		
Carpenter, Lowell C., sign crew foreman	3,360.00	742.20	
Carpenter, Robert W., truck driver	1,055.65	286.25	
Carpenter, Theodore T., laborer	2,081.00		
Carper, Henry W., truck driver	2,066.20		
Carroll, Hatler M., laborer	40.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Carson, Clifford T., section foreman	$3,120.00	$ 9.10	$
Carson, Leo G., laborer	58.50		
Carson, Leslie J., material checker	106.23	.70	
Carter, Clarence S., section foreman	3,120.00		
Carter, Florence R., stenographer	2,690.00		
Carter, Hugh Glen, lineman	714.20		
Carter, Walter D., section foreman	3,120.00		
Carver, Clayton C., truck driver	2,016.75		
Casebeer, George W., street foreman	2,955.53		
Casey, Forrest W., foreman	3.828 31	27.40	
Casey, James A., caretaker	1,920.00		
Cason, Paul R., truck driver	2,349.70		
Castle, David A., laborer	912.50		
Cater, Baine H., bridgeman	829.25		
Cation, Lila L., stenographer	2,400.00		
Catron, Wm. P., motor grader operator	450.53		
Cattrell, John W., senior office assistant	2,901.00		
Cauthers, William H., flagman	552.74		
Cazzell, John, laborer	1,324.25		
Cearley, Chas. O., laborer	1,791.05		
Cearley, R. Harvey, grader operator	2,234.10	1.95	
Chaffee, Arthur, laborer	143.50		
Chamberlin, Gertrude M., clerk	3,000.00		
Chandler, Chas. E., shoveler	229.83		
Chandler, Lloyd R., resident engineer	5.650.00	128.00	
Chandler, Myron F., stockman	2,760.00		
Chandler, W. E., division engineer	9 600.00	666.90	
Chapin, Viola, stenographer	2,160.00		
Chapman, Albert L., computor	2,925 48	24.00	
Chapman, John C., resident engineer	6,000.00	18.21	
Chapman, Merton R., truck driver	2,393.20		
Chapman, Victor L., truck driver	2,127.85	7.60	
Chappell, Howard W., painter	1.575 60		
Chase, Orrin A., designing engineer	7,200.00	16.55	
Chase, Robert C., material inspector	441.38		
Chenoweth, James W., chainman	207.64	32.00	
Cheren, Mike N., bridgeman	685 50		
Chestnut, Floyd T., Jr., laborer	1.241.84		
Chestnut, Floyd T., Sr., operating watchman	1.658.07		19.56
Chestnut, Glenn A., laborer	288.50		
Chidsey, Edward F., resident engineer	5,650.00	172.10	
Chilles, David E., sign shop work foreman	2,880.00		
Chilson, Sanford W., laborer	1,999.95		
Chilton, Frank H., flagman	280.61		
Choate, John T., section foreman helper	2.428.85	9.10	
Christenson, Chester M., rodman	1,454.53	25.75	
Christensen, Chris, section foreman helper	2,728.45		
Christensen, Kenneth V., apprentice raker	1,148.13		
Christian, Gerald R., caretaker	2,702.75		
Christiansen, Alfred J., flushcoater	286.73		
Clark, Erwin L., sign crew foreman	3.360.00	1,175.90	
Clark, Everett W., magnet driver	1,699.77	266.90	
Clark, George M., truck driver	2,114.11	13.35	
Clark, Gordon W., laborer	1,177.35		
Clark, James M., motor grader operator	643.20		
Clark, Joseph A., assistant bridge foreman	3.114.29	213.90	
Clark, William B., material inspector	16.67		
Clarke, Howard V., laborer	1,993.25		
Claus, Irving C., motor grader operator	2,385.90		
Cleaver, John E., section foreman	3,120.00		
Cleveland, Lester W., truck driver	2,283.43		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Clifton, Chas. B., general foreman	$3,350.43	$	$
Clinefelter, C. Lester, street inspector	3,627.42	4.85	
Clawson, Otto W., mechanic	3,009.96		
Close, Leon L., laborer	40.00		
Clough, Huron W., commissioner		387.05	299.60
Clutter, Bryson T., sign crew foreman	2,703.21	135.60	
Clymer, Edward H., cost analyst	5,040.00	447.65	
Cobbs, Leslie, laborer	300.00		
Coffey, Victor H., dist. maint. superintendent	5,348.71	97.75	
Coffman, Wm., laborer	2,075.50		
Colantino, Pat. Q., bridgeman	523.60		
Colbert, Robert L., laborer	1,642.25		
Cole, William R., material checker	361.33	3.50	
Coleman, Anthony J., laborer	1,965.00		
Colley, Clifford C., laborer	114.00		
Collier, Charles D., transitman	4,080.00		
Collier, E. A., division engineer	9,600.00	61.35	
Collins, Clarence M., laboratory assistant	1,254.32	17.20	
Collins, Edgar V., laborer	580.00		
Collins, William F., right of way agent	5,191.77	533.30	29.36
Colvi, George W., mechanic	2,339.71		
Combs, Elmer M., pitman	221.80		
Combs, Elwood E., flagman	268.77		
Comegys, Elmer A., bridgeman	1,519.00		
Cone, Jean L., stenographer	2,160.00		
Confer, Harry P., section foreman	3,120.00		
Conner, Perry F., office assistant	2,396.77		
Connors, Jack F., bridgeman	647.70		
Conover, Joseph L., bridgeman	998.10		
Converse, Carrol E., section foreman	3.120.00	3.30	
Cook, Archie A., truck driver	2,217.21		
Cooksley, Jack R., truck driver	2,728.11	9.65	
Cooley, Joseph L., chainman	434.48		
Cooper, Albert E., lineman	962.35		
Cooper, Forrest B., dist. maint. supt.	6,000.00	148.90	
Cooper, Harvey G., motor grader operator	2,342.75	2.25	
Cooper, Jaun Glenn, section foreman	3,120.00	7.35	
Cooper, Leo. P., caretaker	2,610.45		
Cooper, Sylvester, laborer	218.00		
Cooper, Taylor J., section foreman helper	2,435.00		
Copeland, Alvin Q., truck driver	690.15		
Copeland, Fred A., bridgeman	2,226.65		
Coppock, John E., material inspector	417.24	.30	
Corbett, Ronald W., truck driver	2,228.60		
Cork, Marion F., laborer	226.00		
Cornell, Charles A., head chainman	2,470.33	7.85	
Cornett, Clay M., transitman	4,080.00	21.20	
Caseboom, Mathew W., carpenter	2,777.20		
Coster, Richard L., graderman	137.10		
Cottingham, Willard, section foreman helper	2,626.09		
Cotton, Robert V., inspector	2,705.00	35.65	
Coulter, Chris. L., laborer	106.60		
Counts, Mortimer W., boilerman	1,418.38		
Courson, Richard F., chainman	1,554.84	4.65	
Courtney, Burl E., truck driver	1,213.30		
Covert, Wm. W., truck driver	2,222.05		
Covey, Elijah B., chainman	322.58	2.25	
Cox, Gene M., laborer	728.50		
Cox, Howard S., street inspector	3,387.42	4.70	
Cox, Norman P., section foreman	3,071.68	4.50	
Cox, Oliver R., extra-gang foreman	3,295.77	8.70	3.63

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Cox, Oral E., laborer	$1,652.00	$	$
Cox, Orval A., laborer	284.00		
Craighill, Kenneth, flagman	110.35		
Crain, Mark R., bridge inspector	4,200.00	441.55	
Cramblett, Harry, laborer	1,721.00		
Crampton, Wm. A., laborer	1,888.50		
Crandall, Frederick B., traffic survey supervisor	3,840.00	75.95	
Crane, Claude C., truck driver	2,242.35		
Crause, Arthur R., laborer	322.00		
Crawford, Daniel B., laborer	49.50		
Crawley, Cyril C., section foreman	3,120.00	2.50	
Cress, Glenn D., truck driver	2,206.85		
Crews, W. C., supervisor of permits	5,400.00		
Cribbins, Wm. R., truck driver	2,197.80		
Crocker, Claude W., transitman	3,821.20	13.30	
Cromwell, Wm. O., laborer	1,112.00		
Crosland, Arthur D., laborer	2,073.13		
Crowell, Byron W., carpenter	2,710.40		
Cuc, Ervin P., laborer	197.25		
Cummings, Carroll L., dist. maint. office man	3,008.34	36.60	
Cummings, Clarence, laborer	2,027.00		
Cunningham, Thos. C., laborer	2,113.20		
Cunningham, Wesley N., chainman	358.06	.30	
Curran, Daniel E., transitman	4,080.00	60.25	
Currie, Mabel, secretary	3,240.00	69.75	
Currier, Allon D., section foreman helper	2,657.85	11.10	
Currier, Wm. W., section foreman	1,560.00	6.30	
Curry, Lee O., shoveler	239.90		
Curtis, Elfra I., laborer	210.50		
Curtis, Fred L., miner's helper	929.30		
Cutler, Oscar, assistant office engineer	6,600.00	833.45	
Cutler, Robert M., section foreman	3,120.00		
Dade, Lester R., section foreman	3,120.00		
Dahlin, Edward E., laborer	1,188.00		
Daimler, Cecil F., street foreman	3,413.69		
Dakin, Ivan W., general foreman	4,123.75	5.95	
Daley, LeRoy, office janitor	1,952.26		
Damon, Harold C., laborer	1,148.50		
Danforth, George L., plant inspector	340.00		
Daniel, Carl S., street inspector	3,070.54	21.00	2.55
Danielson, Evelyn L., punch machine operator	2,240.00		
Darby, Claude H., designer	5,640.00		
Darby, Wilber M., division office engineer	4,800.00		
Dark, Stephen C., mechanic	3,122.96	7.75	
Darrar, Carl C., section foreman helper	2,530.80		
Darting, George E., laborer	2,047.38		
Davenport, Lloyd L., timekeeper	2,777.71	1,665.95	
David, Chas. W., shoveler	1,205.21		
Davidson, Delbert A., street foreman	2,652.13		
Davidson, Floyd L., rollerman	2,216.10		
Davidson, Herschel W., painter	2,637.54		
Davidson, Howard W., laborer	1,389.40		
Davidson, J. Frank, section foreman	3,120.00		
Davidson, Lester C., mechanic	3,034.13		
Davidson, Ray L., truck driver	368.00		
Davidson, Wm. Glenn, street foreman	3,232.99		
Davies, La Doyt. M., laboratory assistant	3,600.00	3.95	
Davies, Paul E., clerk	3,600.00		
Davis, Bruce E., laborer	69.50		
Davis, Byron H., bridgeman	419.55		
Davis, Duane D., bridge inspector	1,931.69		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Davis, Harrison H., foreman	$3,600.00	$	$
Davis, Owen L., computor	208.06	.50	
Davis, Wm. C., watchman	1,138.88		
Davis, William H., laborer	845.00		
Dawson, Adrian C., chainman	411.77	.75	
Day, Arlo, laborer	250.50		
Dean, Arthur B., resident engineer	6,000.00		
Dean, Avon J., chainman	2,410.00	.40	
Deardorff, Joe G., laborer	2,047.50		
De Bolt, Warren B., laborer	2,149.25		
De France, Irving A., office engineer	6,000.00	158.10	
De Geeter, Peter, assistant bridge carpenter	2,543.46		
De Joode, Arthur B., carpenter	2,625.00		
Delaney, Sam E., chainman	1,044.50	.50	
Delco, Lew. S., laborer	2,074.70		
De Long, Lawrence M., material checker	65.27		
Delp, Herman C., janitor	2,331.16		
Delp, Sidney C., motor grader operator	2,262.95		
Delyria, George E., motor grader operator	1,925.00		
De Moss, Donald R., laborer	1,240.30		
Denham, Fred A., carpenter	3,024.57		
Denham, Kenneth C., laborer	326.00		
Denman, Richard H., laborer	131.00		
Dennis, Le Roy J., assistant carpenter	2,640.13		
Dennison, Jess J., motor grader operator	2,444.78		
De Noyer, Robert L., truck driver	253.90		
Denson, Walter G., truck driver	2,493.45		
Denstdet, Leslie D., section foreman helper	2,648.10		
Denstdet, Walter R., truck driver	2,164.80	6.95	
Derry, Dick E., laborer	145.60		
DeSart, Delmer G., commission secretary assistant	4,225.00		
De Souza, J. W., general right of way agent	7,735.00	724.40	10.80
Deuber, Paul G., plant inspector	2,773.62	20.95	
Devers, J. M., attorney	12,000.00	833.00	
Devine, Mainor R., truck driver	2,230.43		
De Vore, Elvyn, truck driver	2,452.80		
Dewey, Jack W., burnerman	253.58		
Dewey, Lloyd O., pumpman & caretaker	1,594.71		
De Witt, Gerald A., truck driver	124.40		
Dey, Ross K., section foreman helper	2,340.80		
Dick, Ellsworth W., truck driver	216.95		
Dickerson, Bobbie J., laborer	511.00		
Diedrich, Fred T., laborer	1,325.50		
Diehl, Henry, truck driver	2,285.61		
Dietz, Edward H., watchman	1,657.91		
Dietz, Eugene J., mechanic	3,110.00	8.10	
Dietz, George E., stockman	2,760.00		
Dillabough, Brice L., caretaker	2,760.00		
Dillard, Henry C., gardener	2,250.38		
Dillingham, Frank C., caretaker	1,920.00		
Dimmick, Eugene E., power broom operator	272.40		
Dimick, Ralph C., raker	2,280.65		
Ditto, Glenn A., truck driver	2,230.75		
Dixon, Howard K., laborer	22.00		
Dixon, Leland P., pump attendant	2,362.29		
Dizney, Clarence L., carpenter	2,943.94		
Doane, Silas W., assistant bridge carpenter	2,610.75	4.00	
Dobrkovsky, Fred, shoveler	1,590.90		
Doerfler, Ernest H., sign crew helper	2,280.00	655.30	
Doerksen, Ben. F., bridgeman	48.00		
Domogalla, Vern F., sign crew foreman	3,360.00	981.05	

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Don, James, transitman	$4,080.00	$	$
Donnell, John M., laborer	21.50		
Donnelly, Cornelius J., laborer	80.53		
Donnelly, Wilford A., oiler driver	1,586.65		
Dorgan, John F., laborer	93.50		
Dorn, Arthur Z., foreman	3,173.37		
Dorn, Fred E., truck driver	2,183.38		
Dornbecker, Clifford L., laborer	10.50		
Dorner, William J., resident bridge inspector	3,956.61	7.55	
Dougherty, Ralph, truck driver	1,289.25		
Douglas, Ervin R., laborer	195.78		
Douglas, Francis M., timekeeper	96.67		
Douglas, Vernon, boilerman	2,490.98	19.15	
Doughton, Ellis C., laborer	235.10		
Dow, Leonard N., transitman	4,080.00	16.10	
Dow, Robert H., laborer	62.00		
Dowell, Gordon E., boilerman	1,078.50		
Dowling, Austin A., laborer	1,699.75		
Downey, Harry L., head chainman	2,740.00	63.45	
Downing, Grant P., section foreman helper	2,616.20		
Drager, Geo. E., laborer	277.79		
Draper, Andy J., axeman	980.10		
Dresser, Marshall R., resident bridge engineer	6,000.00	24.25	
Drollinger, Herbert M., laborer	873.00		
Duffy, Arthur, transitman	3,920.00	.50	
Dugan, B. Evert., caretaker	2,760.00		
Dugan, C. Wayne, caretaker	922.75		
Dully, Eugene A., flagman	618.76		
Dunavan, William F., laborer	2,034.00		
Dunklee, Wm. A., laborer	1,057.50		
Dunmire, LeRoy E., pull grader operator	2,169.58		
Dunn, Charles W., bridgeman	2,503.85		
Dunn, Wm. C., laborer	369.00		
Durand, James, miner's helper	262.00		
Durst, John J., laborer	303.50		
Duvall, Delbert G., truck driver	909.20		
Duvall, Herbert F., truck driver	984.35		
Dye, Alonzo C., laborer	1,790.40		
Dyer, Cleo N., truck driver	795.33		
Eason, F. D., division engineer	9,600.00	484.20	
Eaton, Arthur N., laborer	174.46		
Eayrs, Jack T., mechanic	3,021.69		
Ebsen, Albert L., laboratory assistant	3,590.00		
Eckholm, Carl W., laborer	1,917.25		
Eddy, Carl G., section foreman	3,120.00		
Eddy, Harry L., transitman	3,660.00	38.30	
Edgerton, Roy C., computor	3,600.00	5.25	
Edmiston, Ralph A., power mower operator	259.10		
Edwards, Alvin, blademan	2,170.30		
Edwards, Frank, truck driver	2,119.45		
Edwards, Julian A., mechanic's helper	2,507.20	3.10	
Edwards, Lennis L., section foreman	3,120.00		
Edwards, Philip E., laborer	1,352.50		
Edwards, Tom, resident bridge engineer	5,000.00	10.30	
Eggen, Orville N., chainman	806.45		
Eggstaff, Ralph, transitman	3,720.00	245.65	
Elder, Marguerite, stenographer	2,430.00		
Elkins, Frank, material inspector	273.33	2.80	
Elledge, T. J., man and team	892.80		
Elliott, Arlyn D., stockroom helper	1,543.50		
Elliott, Prewitt S., laborer	1,039.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Elliott, Ray H., carpenter	$2,757.00	$	$
Elliott, W. Elbert, power mower operator	2,216.49		
Ellis, Harvey L., truck driver	1,289.88		
Elmgren, Roy C., caretaker	590.25		
Elspas, Chester A., material inspector	2,450.00	1.00	
Elwood, Kenneth C., leverman	751.26		
Ely, Ernest E., drawbridge superintendent	3,360.00		6.58
Emery, James B., section foreman helper	2,631.85	9.20	
Emmirich, Frank J., working foreman	2,352.15		
Engel, Floyd A., flushcoater	1,296.32		
England, Isely B., section foreman	3,120.00		
Engle, Harry W., laborer	292.00		
Enke, Doris A., stenographer	1,776.00		
Enneberg, Carl T., motor grader operator	2,355.70	2.35	
Enos, Paul R., carpenter	2,112.70		
Epperly, Alfred K., truck driver	941.50		
Epperly, Charles S., laborer	2,141.04		
Epperly, Guy E., watchman	2,411.20		
Epperson, Burgess L., section foreman	2,993.49	1.80	
Erbe, Charles F., mechanic	3,314.40	6.50	
Ericksen, Einer W., material inspector	1,411.58		
Erickson, Harry B., material inspector	877.52	8.70	
Erickson, Paul, laborer	526.50		
Erpelding, Magdalene M., stenographer	2,480.00		
Erskine, Henry, section foreman	3,120.00		
Ervin, Albert W., laborer	241.00		
Erwin, Hugh G., truck driver	2,343.00		
Esch, Harry M., sign shop painter	2,216.23		
Esmay, John W., section foreman helper	2,431.48		
Etzel, I. George, clerk	2,871.13		
Evans, Alvin E., laborer	1,006.50		
Evans, Theo. E., truck driver	2,421.55		
Evans, Wilbur T., truck driver	2,378.83		
Evans, Willis E., truck driver	1,969.25		
Evans, Willis Franklin, truck driver	2,173.80		
Everson, John D., electrical designer	4,200.00	66.15	
Everson, Lynn E., chainman	887.42	2.05	
Ewan, Elbert, section foreman helper	2,607.49		
Fair, Floyd H., motor grader operator	2,357.78		
Fairbanks, Homer, section foreman helper	2,615.50	4.25	
Fairchild, Russell S., laborer	703.30		
Falkenhagen, David B., dist. maint. officeman	3,600.00	2.00	
Fanning, Floyd, truck driver	2,269.95		
Faris, Guy S., section foreman	3,120.00		
Farmer, Floyd J., rollerman	219.00		
Farnum, Lester B., mechanic	3,539.00	28.65	
Farrar, Frederic W., dist. maint. superintendent	4,795.00	58.00	
Farrell, Wm. V., laborer	80.00		
Faubion, Aunnie J., truck driver	670.10		
Fauerso, Walter E., chainman	132.26		
Faust, Ernest R., shoveler	717.55		
Faust, Robert M., head chainman	2,520.00		
Fay, Earl C., section foreman	3,120.00		
Fearnley, Frances, typist	1,638.71		
Feikert, Daniel H., material inspector	530.00	.75	
Ferebee, James B., section foreman helper	2,562.80	3.35	
Ferguson, Clarence S., plant foreman	3,029.89	4.75	
Ferguson, Earl W., section foreman helper	2,565.65	3.40	
Ferguson, John C., laborer	1,983.50		
Ferguson, Lee R., section foreman	3,120.00		
Ferguson, Paul J., chainman	403.45		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Ferguson, Ralph, man & team	$1,115.40	$	$
Ferrie, Geo. J., section foreman	3,120.00		
Ferris, Roy S., senior office assistant	2,853.00		
Fetsch, Carl, truck driver	1,004.43		
Finch, Orvin B., laborer	1,998.00		
Finkbiner, Nilsson M., engineer of materials	7,200.00	141.20	
Firkins, Menzie D., carpenter	2,681.50		
Fish, Gilbert R., laborer	135.76		
Fisher, Lauren, chainman	109.90		
Fisk, Howard W., sign crew helper	2,280.00	734.35	
Fisk, Ormal E., section foreman	3,120.00		
Fitch, Levi H., laborer	1,068.00		
Fitch, Marvin, laborer	178.50		
Fitch, Wilford H., truck driver	2,095.45		
Fitzgerald, Leonard A., material inspector	200.00	1.00	
Fix, Walter P., power mower operator	975.70		
Flanagan, Charles E., bridge foreman	3,960.00	6.30	
Flannagan, Harry H., bridge operator	2,760.00		
Fleek, Albert L., laborer	1,778.00		
Flesher, John W., Jr., shoveler	850.10		
Fletcher, Agnes M., stenographer	2,145.33		
Fletcher, Ray C., bridgeman	72.00		
Fletcher, Roy A., laborer	1,261.05		
Flock, Robert R., bridge foreman	3,960.00		
Floer, Christian, material inspector	1,852.69	6.25	
Flory, Keith N., head chainman	2,520.00	37.90	
Foe, Fred G., watchman	723.86		
Follett, Lee T., truck driver	2,377.35		
Folliett, Warren D., bridgeman	2,452.20		
Folston, James E., transitman	4,040.00	16.60	
Forbes, Frank A., section foreman helper	2,664.03		
Forbes, Guy O., rollerman	831.29		
Ford, Austin J., resident engineer	5,310.00	4.10	
Ford, Ernest E., carpenter	2,769.20	9.50	
Forrest, Russell A., transitman	3,940.00		
Forty, Bernal V., section foreman	3,120.00		
Forty, John Lorin, chainman	2,400.00	21.55	
Fossen, Antone A., transitman	4,080.00		
Foster, James F., truck driver	1,156.38		
Foster, Walter S., laborer	2,039.90		
Fowler, Albert C., traveling park foreman	3,124.00		
Fowler, Arthur, laborer	147.41		
Fowler, Cleve M., watchman	928.98		
Fox, Dee, section foreman	3,120.00		
Frack, Ernest F., laborer	895.50		
Frack, William O., section foreman helper	2,064.49		
Fraiola, Anthony, laborer	103.40		
Fraley, Verl R., head chaiman	2,460.00		
Francis, James, district maintenance officeman	3,660.00		
Francis, Willard B., truck driver	2,050.60		
Franklin, Lockwood W., transitman	4,080.00		
Frankum, Jessie L., material inspector	1,045.81	22.35	
Fransen, Olaf G., timekeeper	2,281.82		
Freeman, George, flagman	229.51		
Frey, Frank C., Jr., section foreman	3,120.00	3.45	
Frink, Howard E., draftsman	3,420.00		
Froebe, Earl Wayne, material inspector	2,416.56	5.20	
Frogge, Richard T., laborer	44.00		
Frost, Ronald E., watchman	889.05		
Fryer, Hyrtle, shoveler	923.33		
Fryer, Vivian B., stenographer	2,400.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Fulp, E. Russell, motor grader operator	$2,446.20	$	$
Fulton, T. C., truck driver	423.30		
Furman, Arthur F., laborer	203.50		
Furman, Roscoe R., truck driver	2,400.87	32.30	
Furrow, Ray A., resident engineer	6,000.00	23.75	
Fussell, John D., watchman	792.77		
Gabriel, Lloyd W., chief operator	3,632.86		
Gaines, Wm., laborer	46.00		
Gale, Henry E., street inspector	1,667.96	25.40	20.08
Gall, Cecil C., resident engineer	6,000.00	27.35	
Gallacher, Alexander, section foreman	3,120.00		
Gallagher, Kenneth A., chainman	100.80		
Galloway, Dean G., truck driver	1,707.60		
Galloway, William H., laborer	164.50		
Gann, Frederick, truck driver	2,256.65		
Gardiner, Clifford L., right of way agent	5,115.00	1,225.50	
Gardner, Cecil A., assistant office engineer	5,150.00	116.55	
Gardner, Ennis D., laborer	139 50		
Gardner, Francis A., truck driver	2,173.53		
Gardner, Geo. L., shoveler	645.41		
Garrison, Bryan, plant foreman	2,220.26		
Gary, John E., load spotter	368.67		
Gately, Joseph E., draftsman	2,550.00		
Gates, Sidney W., apprentice raker	1,124.35		
Gayman, Stanley, plant foreman	3,077.84		
Gearhart, Gordon, shoveler	239.30		
Geddes, Joe F., laborer	912.00		
Gehlen, Quentin M., material inspector and chainman	996.77		
Gell, Alta Vivian, stenographer	2,196.19		
Gentry, Geo. H., blacksmith	2,587.00	3.35	
Gentry, Geo. V., truck driver	837.59		
Gibbons, Wm. J., gate tender	2,585.76		
Gibson, Wm. M., general foreman	3,485.41	8.55	
Giesy, Grover C., Sr., flagman	1,258.93		
Gifford, Ralph I., photographer	4,400.00	361.00	
Gilbert, Ray D., shop clerk	2,760.00		
Giles, Roy W., laborer	36.00		
Gilkey, Richard W., truck driver	791.80		
Gilkison, Ralph E., bridgeman	2,051.10		
Gill, Don H., bridgeman	1,169.40		
Gill, Virgil L., section foreman	3,120.00		
Gillam, Chester, laborer	80.00		
Gilliland, Geo. R., flagman	611.80		
Gillette, Ralph M., section foreman	3,117.84		
Gillette, S. B., assistant purchasing agent	7,200.00		
Gillmor, Clyde C., section foreman	3,120.00		
Gilstrap, Robert L., laborer	283.18		
Girton, W. Irvin, miner	1,103.40		
Gisholt, Harry E., truck driver	1,833.20		
Givan, Ruth, clerk	2,640.00		
Glaisyer, H. B., commission secretary	8,100.00	239.25	27.90
Glascock, Marvin M., mechanic	3,443.31	158.35	
Glasscock, Harold C., truck driver	228.55		
Glines, Leon L., laborer	910.50		
Godfrey, John C., laborer	201.75		
Godken, Kenneth R., laborer	114.20		
Godsey, Chester I., motor grader operator	2,544.80		
Goe, C. Gerald, truck driver	1,831.30		
Goeman, Dick, truck driver	225.90		
Gohl, Edward A., section foreman	2,947.08		
Goin, Everett E., laborer	437.75		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Goode, Don D., landscape foreman	$1,561.47	$	$
Goodell, Vernon N., paintman	1,070.09		
Goodnight, Victor L., dist. maint. superintendent	6,000.00	340.65	
Goodwin, Chas. W., caretaker	2,754.43		
Gordon, Claude W., bridgeman	2,794.59		
Gordon, Frank J., laborer	2,383.10	2.35	
Gould, George L., section foreman helper	2,679.30		
Grabenhorst, Rex A., truck driver	169.36		
Grabenhorst, William C., truck driver	1,749.72		
Graetz, Harold H., laborer	229.75		
Graham, Howard V., motor grader operator	2,394.94		
Graham, John H., bridge operator	2,760.00		
Gramse, Adolph, pull grader operator	2,203.85		
Gramse, Fred M., section foreman helper	2,334.15		
Grannis, G. Robert, laborer	324.64		
Graue, Vincent E., chainman	563.33	15.35	
Graven, Elmer W., section foreman helper	2,733.53		
Gray, Floyd M., laborer	36.50		
Gray, Robert F., section foreman helper	2,535.65	6.90	
Greb, Alvin P., laborer	1,416.90		
Green, Arthur N., stockroom clerk	2,728.17		
Green, Clarence W., officeman	3,600.00		
Green, Thad A., draftsman	4,080.00		
Greene, Walter N., section foreman	3,120.00		
Gregg, Lloyd B., pay roll clerk	3,840.00		
Grenfell, William S., radio operator	3,573.00	285.95	
Griffin, Elmer H., laborer	56.50		
Griffin, Robert E., truck driver	2,188.87		
Grove, Lee M., truck driver	132.60		
Grow, Hugh, truck driver	1,354.80		
Grow, Phil G., laborer	635.50		
Grubbe, N. Nelson, transport driver	1,290.15		
Gruchow, Grant A., mechanic	3,241.60	44.90	
Gruis, Donald E., laborer	943.50		
Gruis, Ed., laborer	766.25		
Gunter, Merrill E., laborer	264.00		
Gustison, Leigh, truck driver	118.90		
Guthrie, Joseph L., laborer	233.60		
Gwillim, Owen C., assistant bridge carpenter	2,591.18		
Hack, Raymond L., truck driver	1,038.60		
Hackenbruck, John A., laborer	158.75		
Hackett, Henry N., personnel engineer	5,640.00		
Haek, Jack J., raker	693.32		
Haft, Roy, laborer	2,013.00		
Haga, Lester E., section foreman helper	2,518.43		
Hage, Ernest J., laborer	290.99		
Hagemann, Charles F., laboratory office manager	4,140.00		
Hagemann, Frederick J., senior office assistant	3,040.00	4.80	
Hagemann, French T., laboratory assistant	1,098.71		
Hagen, Arthur, truck driver	2,240.99		
Hagen, Otto R., laborer	1,517.05		
Haines, Lelin L., laborer	46.00		
Hale, J. Irving, sign shop painter	2,186.83		
Haley, Arvilla M., stenographer	2,148.39		
Halek, Emil F., master mechanic	7,200.00	20.10	
Hall, Andrew A., bridgeman	2,533.35		
Hall, Frank L., draftsman	4,040.00	43.15	
Hall, Lloyd E., power mower operator	2,265.01		
Hall, Malcom C., section foreman helper	2,676.05	2.55	
Hall, Robert J., machinist	3,243.00		
Hall, W. Raymond, rollerman	2,537.05		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Halladay, George M., truck driver	$2,226.96	$ 1.50	$
Halpenny, Clair H., stakeman	1,692.70	15.05	
Ham, J. Dale, raker	1,450.13		
Hamilton, Gay E., stenographer	253.33		
Hamilton, Hollis H., section foreman helper	2,525.32		
Hammock, Jonas A., spotting foreman	2,399.48	11.00	
Hanan, Wayne L., laborer	1,213.55		
Hannum, Arthur L., tamperman	823.70		
Hannum, Willard F., raker	2,025.04		
Hansen, Ernest E., truck driver	40.15		
Hansen, Roy F., truck driver	684.40		
Hansen, Theodore T., watchman	1,021.45		
Harbert, Melvin E., chainman	1,074.19		
Harbick, Lincoln J., truck driver	2,026.43		
Hardcastle, Donald E., head chainman	2,440.00	16.50	
Hardie, James A., office assistant	4,780.65		
Hardigree, Ike, laborer	492.80		
Harford, Roland M., chainman	913.33		
Harkey, Celo V., laborer	1,359.95		
Harless, Lyle E., levelman	3,049.01	7.90	
Harlow, Price E., mechanic	2,994.79	41.50	
Harms, Henry T., truck driver	402.43		
Harnish, Raymond B., section foreman	3,108.00		
Harnsbarger, Edward A., carpenter foreman	3,222.60		
Harnsberger, John M., blacksmith foreman	2,669.00		
Harnsberger, Wilbur E., mechanic	3,213.78	19.90	
Harold, Herbert C., paintman	723.73		
Harold, Julius Lee, paintman	425.20		
Harper, James M., laborer	432.50		
Harpole, Ray A., pilot car driver	840.96		
Harpst, Chester W., truck driver	2,266.02		
Harra, Garnet W., assistant engineer of materials	5,400.00	67.35	
Harrington, Trajan S., laborer	882.50		
Harris, Herbert L., truck driver	220.70		
Harris, Keith M., shovel operator	2,955.65		
Harris, Oscar E., watchman	2,520.00		
Harris, Ray R., truck driver	2,245.86		
Harris, Tom, lineman	1,219.40		
Harrison, Andrew G., truck driver	2,190.33		
Harrison, Twila, stenographer	2,203.39		
Hartman, Ernest P., transitman	4,011.77		
Hartman, Robt. F., laborer	240.43		
Hartrampf, T. Ross, computor	3,184.09	3.30	
Hartzell, Edgar R., laborer	54.45		
Harwood, Chas. A., rollerman	949.13		
Haselwander, Henry M., truck driver	2,046.45		
Haskell, Chester M., truck driver	2,217.06		
Haskins, Ed. L., truck driver	2,173.28		
Hathaway, Ella C., clerk	3,000.00		
Hathaway, Jess D., carpenter	2,505.30	5.35	
Hathaway, Leonard G., bridgeman	2,470.50		
Hathorn, W. Harold, transitman	4,060.11	7.25	
Haufle, Robert M., laborer	251.51		
Havenner, Joseph E., office assistant	417.21	3.90	
Hawke, Malcolm H., chief accountant	3,842.58	9.40	
Hawkins, Chas. H., laborer	1,947.65		
Hay, Daniel Lee, laborer	2,057.98	2.05	
Hayden, Clark O., section foreman	3,120.00		
Hayden, Joseph L., laborer	199.25		
Hayes, J. Floyd, truck driver	2,152.06		
Hayes, Raymond, laborer	2,009.50		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Hayes, Roscoe J., truck driver	$ 11.55	$	$
Haynes, Arthur L., bridgeman	2,325.60		
Haynes, Cary D., transitman	4.080.00		
Haynes, Richard B., chainman	849.58		
Hays, Vernon R., truck driver	2,120.90		
Hazelton, Charles E., laborer	2,106.60		
Head, Cecil W., planning survey office assistant	2,400.00		
Heath, Robert H., laborer	1,318.00		
Heath, Roy H., laborer	40.00		
Heckinger, Ray L., raker	2,296.01		
Hector, Wally M., head chainman	2,567.59		
Hedrick, Charles D., foreman	4,142.21		
Heidel, Carl A., caretaker	1,878.21	17.00	
Heim, H. Verner, chainman	2,400.00	.85	
Heine, Jacob, laborer	47.50		
Heinz, Leslie E., laborer	238.50		
Helm, Alvin G., laborer	826.50		
Hemingway, J. Stewart, material inspector	266.67	.50	
Henderson, Carl E., paintman	1,009.20		
Henderson, Merrill C., transitman	3,840.00	1.95	
Henderson, Orville E., section foreman helper	2,449.85		
Herberger, Walter J., watchman	800.15		
Herder, Ellsworth E., apprentice raker	999.64		
Hermens, Adrian P., watchman	524.87		
Hervey, Thomas E., laborer	1,934.50		
Hess, Alvin E., blacksmith helper	2,554.35		
Hess, Elmer F., laborer	325.35		
Hess, John O., transitman	3,687.58		
Hester, George C., office assistant	3,600.00	21.50	
Hetrick, Hollis I., transitman	3,640.00	55.55	
Heuperman, Lambertus F., engineering draftsman	5,145.00		
Heuser, Karl H., laborer	2,727.00		
Hewitt, Myron C., sign crew helper	2,290.08	658.00	
Hewitt, Wm. H., pull grader operator	2,134.91		
Hiatt, Jack C., transitman	3,826.45	19.45	
Hiatt, Wm. A., section foreman	3,120.00		
Hibbert, Alden N., laborer	219.26		
Hickox, Victor V., watchman	659.89		
Higgins, Raymond A., sign shop painter	2,207.70	268.50	
Hildebrandt, Elmer H., truck driver	1,616.25		
Hill, Elwin N., truck driver	329.74		
Hill, Glenn F., section foreman helper	2,698.70		
Hill, G. Herbert, laborer	144.50		
Hill, Robert H., material checker	230.00		
Hill, Robert N., chainman	361.29		
Hiller, Frank C., truck driver	838.09		
Hilyard, Geo. L., truck driver	469.94		
Hilyard, Wm. S., pull grader operator	2,194.04		
Himmal, Philip D., material inspector	338.71		
Hines, Wayne J., shoveler	678.60		
Hines, Willis E., laborer	1,806.90	2.65	
Hinges, Karl E., office manager	4,200.00		
Hinkle, J. Twig, section foreman helper	2,398.18		
Hinshaw, Mackalyn, laborer	195.31		
Hinshaw, Oliver, laborer	220.88		
Hinz, E. A., chief clerk	3,840.00		
Hiscock, Arthur W., laborer	135.10		
Hisey, Dale W., power mower operator	834.95		
Hix, Wm. R., blademan	1,140.13		
Hoard, Norman B., chainman	2,112.43		
Hobbs, Jim J., laborer	637.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Hoch, Russell, section foreman helper	$2,674.43	$	$
Hockman, John D., lineman	977.93	192.40	
Hodge, Walter S., resident engineer	6,000.00	192.65	
Hodgen, Orlando, laborer	1,952.00		
Hodges, John P., foreman	4,130.75		
Hodgins, Wm. H., labor & team	1,403.10		
Hodgkin, Lemuel N., laborer	29.50		
Hoeger, Enno A., carpenter	2,505.65		
Hoevet, Gilbert J., truck driver	2,248.96		
Hoevet, Paul R., lineman	1,492.49		
Hoevet, Wm. C., painter	1,049.62	257.40	
Hoffman, Henry W., kettleman	1,069.45		
Hoflich, Vergil S., truck driver	2,397.30		
Hogg, J. Frank, man & team	1,657.30		
Hogg, Virgil E., laborer	937.00		
Hogue, Lloyd E., bridgeman	214.20		
Holbert, Kelly V., laborer	40.00		
Holce, Arthur L., laborer	1,170.05		
Holcomb, Clyde A., motor grader operator	2,443.20		
Hollamon, Floyd M., truck driver	2,114.95		
Holland, Edw. J., section foreman helper	2,664.35	5.85	
Holland, Wm. H., section foreman	3,213.71		
Hollenberg, R. V., traffic manager	4,800.00		
Hollingsworth, Hilton H., jackhammer man	300.90		
Hollingsworth, Hirem E., axeman	360.00		
Holman, Arthur W., flushcoater	905.80		
Holman, Jack H., pitman	1,684.83		
Holmes, Charles J., man & team	2,199.50		
Holmes, Frank D., section foreman helper	2,318.96		
Holmes, John W., assistant real property officeman	3,890.00		
Holst, Herbert G., load spotter	472.35		
Holteen, Clell H., truck driver	463.80		
Hood, Homer J., traffic recorder	6,210.00		
Hooker, Merritt S., watchman	319.27		
Hoppe, Lawrence A., laborer	202.39		
Hoppe, Otto E., plant foreman	2,925.78	5.90	
Hopper, Roland, section foreman	2,711.16		
Horning, Harry E., power mower operator	2,421.89		
Horning, Robert J., watchman	1,375.58		
Horton, Otto P., section foreman	3,080.17		
Hosmer, Kenneth L., laborer	53.00		
Hossman, Frank J., carpenter	2,723.00		
Hounshell, Robert Lee, laborer	2,029.75		
Householder, Geo. D., section foreman helper	2,693.61		
Houston, Frederic L., laborer	1,057.65		
Houston, Paul W., draftsman	4,080.00		
Houtz, Harold F., truck driver	214.00		
Howard, Chas. A., sign crew foreman	3,360.00	946.76	
Howard, Elmon W., chainman	900.00		
Howard, W. Ray, laboratory technician	4,200.00		
Howe, Robert G., assistant timekeeper	557.78		
Howell, Paul W., inspector	2,312.64	1.00	
Howell, Richard L., laborer	220.00		
Howell, Wm. F., laborer	1,991.45		
Howry, John A., laborer	1,927.25		
Howry, John E., section foreman	3,127.16		
Hoxie, C. Oscar, section foreman	3,600.00	1.00	
Hoxie, Harry E., truck driver	1,544.85		
Hoxie, J. Eugene, watchman	894.05		
Hoxie, James L., truck driver	1,418.10		
Hubbs, Marion W., laborer	1,032.50		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Huff, Douglas E., material inspector	$ 348.39	$ .40	$
Huffman, Frank M., timekeeper	2,830.29	3.35	
Huffman, Theodore R., material inspector	90.00		
Hughes, Charles H., street inspector	3,600.00		
Hughes, Nick N., pump attendant	2,162.30		
Hughlett, Horton W., bridge foreman	3,960.00	30.30	
Hugo, Frank E., mechanic	3,261.60		
Hulbert, Karl E., laborer	624.00		
Hull, Frederic J., bridge operator	2,625.00		
Hunter, Waldo C., laborer	2,014.83		
Huntington, Chester N., laborer	2,055.75		
Huntley, B. Phillip, pump attendant	1,657.43	23.00	
Hunzicker, Otto A., laborer	1,956.85		
Hussey, Fredrick J., section foreman	3,120.00		
Husted, Glen W., truck driver	2,021.95		
Husted, Harry D., laborer	1,170.70		
Hutchcroft, Hubert, laborer	1,620.33		
Hutchings, Marvin A., head lineman	1,741.58		
Hutchinson, Frank G., artist draftsman	5,550.00	124.70	137.44
Hyde, Earl E., foreman	3,604.99		
Hyvari, Oscar H., section foreman helper	2,453.65		
Iler, Fritz C., motor grader operator	2,445.30		
Ingels, Hollis G., levelman	1,885.48	39.60	
Ingerson, James L., assistant bridge carpenter	2,633.15		
Ingham, Stephen H., boiler man	157.80		
Inglish, Charlie R., truck driver	121.60		
Ingrey, Helen, secretary	3,600.00		
Inman, Wm. S., section foreman	3,120.00	5.20	
Isham, John M., office clerk	3,600.00	6.45	5.44
Ismert, Robert H., carpenter	2,726.85		
Iversen, Chas. H., truck driver	1,347.13	3.30	
Jack, Raymond E., section foreman helper	2,731.95		
Jackson, Chester, laborer	1,663.10	7.50	
Jackson, Donald V., truck driver	304.20		
Jackson, John S., truck driver	2,172.25		
Jackson, Max H., lineman	274.50		
Jacobs, Chas., truck driver	2,181.05		
Jacobs, Floy, laborer	909.00		
Jacobs, Weaver G., carpenter	2,595.86		
Jacobson, Carl C., truck driver	2,154.85		
Jacobson, Ford B., truck driver	2,251.43		
Jacobson, Vernon Z., flagman	228.00	6.55	
Jaeger, Nicholas, laborer	1,933.50		
Jahns, Homer J., laborer	1,608.50		
Jamerson, William T., truck driver	1,895.65		
James, Robert L., sign crew	1,694.88	628.15	
James, William H., section foreman	3,120.00		
James, Warthen E., truck driver	1,296.95		
Jamieson, Warren E., flushcoater	513.87		
Janes, Marion A., laborer	1,102.00		
Janz, Arthur E., timekeeper	1,507.20		
Jaqua, Clare E., senior office assistant	2,880.00	22.90	
Jarvill, Charles W., bridgeman	364.20		
Jarvis, Clare H., field assistant	9.00	2.20	
Jayes, John J., shop superintendent	4,440.00		
Jayes, William S., shop superintendent	4,440.00		
Jeli, George J., plant foreman	2,243.74		
Jenkins, Jn. F., laborer	218.50	34.00	
Jennings, Charles L., laborer	1,069.25		
Jennings, Fred G., truck driver	2,325.00	20.70	
Jensen, Edward N., shovel operator	3,699.15		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Jensen, Luther L., resident bridge engineer	$5 600.00	$ 5.85	$ ....
Jensen, Otis V., landscape	3,480.00	169.60	....
Johns, Chester B., mechanic	3,093.60	....	....
Johns, Dewey L., laborer	310.50	....	....
Johns, Donald H., laborer	194.50	....	....
John, Glen, laborer	16.50	....	....
Johnson, Albert E., resident bridge engineer	4,225.00	3.05	....
Johnson, Albert G., locating engineer	4,741.93	....	....
Johnson, Alfred E., laborer	267.00	....	....
Johnson, Arthur M., cost keeper	4,000.00	2.90	....
Johnson, Benjamin O., resident engineer	6,000.00	4.55	....
Johnson, Bert W., kettleman	541.17	....	....
Johnson, Charles E., rollerman	635.15	....	....
Johnson, Clayton E., laborer	836.00	....	....
Johnson, Clifford E., blacksmith	2,939.56	2.85	....
Johnson, Clyde E., truck driver	1,999.83	....	....
Johnson, C. Wm., section foreman helper	2,683.53	....	....
Johnson, Dorothy E., statistician	3,240.00	....	....
Johnson, Earl Van Ness, laborer	116.50	....	....
Johnson, Ed. D., laborer	1,561.10	....	....
Johnson, Edgar B., working blacksmith foreman	3,270.60	....	....
Johnson, Edwin C., timekeeper	639.18	....	....
Johnson, Ernest, section foreman	3,120.00	....	....
Johnson, George M., section foreman	2,867.13	....	....
Johnson, Jean, stenographer	2,160.00	....	....
Johnson, John, gate tender	1,587.10	....	....
Johnson, Joseph L., bridgeman	2,415.20	....	....
Johnson, Lloyd C., computor	3,716.77	2.30	....
Johnson, Valdemar P., office assistant	456.84	2.40	....
Johnston, Emory E., resident engineer	4,826.94	12.92	....
Johnston, Lowell A., resident engineer	4,920.00	....	....
Jolly, William, laborer	2,044.00	....	....
Jones, Clifford R., section foreman helper	2,960.14	....	....
Jones, E. Clare, sign crew foreman	3,360.00	893.65	....
Jones, General M., section foreman	3,120.00	2.45	....
Jones, Gilbert E., draftsman	4,080.00	....	....
Jones, Hilmer E., laborer	1,683.40	4.10	....
Jones, John T., Sr., laborer	1,666.95	....	....
Jones, Joseph O., caretaker	740.00	....	....
Jones, Lawrence E., stakeman	68.40	....	....
Jones, Norval H., shop superintendent	4,440.00	....	....
Jones, Ollie C., section foreman	3,120.00	18.35	....
Jones, S. Paul, transitman	4,080.00	11.25	....
Jones, Verne R., assistant cost analyst	3,600.00	344.60	....
Jordan, Calvin A., resident bridge engineer	6,000.00	5.10	....
Judy, Justin E., laborer	1,926.50	....	....
Jullum, Henry, assistant cost analyst	3,600.00	761.70	....
Juntenen, Jack S., laborer	1,806.00	....	....
Jurgens, Earl F., truck driver	113.76	....	....
Justen, Norman W., power mower operator	2,010.15	....	....
Justen, Raymond F., truck driver	708.30	....	....
Justice, Halbert G., laborer	628.50	....	....
Juve, Maurice N., transitman	4,080.00	....	....
Kahler, Arnold J., truck driver	2,118.46	2.60	....
Kahler, Gus W., laborer	31.50	....	....
Kamph, Frank E., section foreman helper	2,337.36	....	....
Kaptur, Lawrence L., material checker	93.33	....	....
Karns, Ira, motor grader operator	2,561.00	....	....
Kasinger, Jackson T., apprentice raker	328.26	....	....
Kasinger, Lyman R., shoveler	806.90	....	....
Kayser, George, timekeeper	2,909.33	....	....

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Kayser, Henry J., mechanic	$3,086.56	$ 8.95	$
Kebelbeck, Melvin J., bridgeman	1,912.10		
Keef, Dennis W., financial survey assistant manager	4,200.00	6.90	
Keen, Ray W., pitman	22.55		
Keeney, Herbert E., laborer	40.00		
Keith, Cecil E., draftsman	2,950.32	181.24	
Kelley, Edgar H., watchman	2,522.96	1.70	
Kelley, Richard R., bridge inspector	341.13	11.05	
Kellogg, Robert F., computor	2,900.34	1.35	
Kempter, Leslie O., laborer	120.65		
Kenagy, Raymond U., truck driver	340.75		
Kennedy, John, Laborer	563.00		
Kennedy, Norwain W., mechanic	2,953.89		
Kennen, Gilbert J., street inspector	3,145.16		
Kenney, Ezra A., material inspector	663.34		
Kenney, Virgil P., laborer	224.28		
Kennon, O. Roy, resident bridge engineer	2,767.42	3.35	
Kent, Rudyard E., bridgeman	1,738.20	2.55	
Kerber, Leo, foreman	4,257.62		
Kerber, Louis R., general foreman	3,572.81		
Kergil, John F., laborer	107.71		
Kergil, William, truck driver	1,640.42		
Kertes, Alvin K., clerk	44.00		
Keys, Arthur H., truck driver	2,367.30		
Kidd, Ernest C., motor grader operator	245.15		
Kiddle, Clyde L., Jr., laborer	202.00		
Kight, Cecil H., truck driver	2,533.20	10.20	
Kilger, Leo A., draftsman	3,977.89		
Kilgore, Clair L., sign crew helper	1,558.62	293.05	
Killin, Amil J., mechanic	2,634.15		
Kinder, John R., flagman	252.52		
King, Dustin C., chainman	920.00		
King, Melvin R., truck driver	149.45		
King, Ramon V., laborer	1,396.00		
King, Royal C., material inspector	106.45		
Kirby, Richard B., flagman	901.20		
Kirby, Wm. K., surface foreman	3,025.37	137.65	
Kirk, Verne G., laborer	133.00		
Kirk, Walter E., truck driver	2,228.05		
Kirkham, Leo E., section foreman	3,166.76	31.40	
Kirkwood, Albert A., locating engineer	6,000.00	19.85	
Kistner, Kenneth L., foreman	3,600.00		
Kivett, Clayton L., working foreman	2,311.75		
Klein, Kenneth M., automotive economist	4,200.00	169.10	
Kline, Robert E., motor grader operator	2,362.20	4.20	
Klineman, Leland S., laborer	1,924.00		
Klinger, David A., laborer—truck driver	1,198.77		
Klitz, Noel, mechanic	3,168.40	65.35	
Klonus, Geo. A., raker	1,165.05		
Kneass, Arthur B., real property officeman	5,525.00	3.90	
Knox, Cecile, stenographer	2,690.00		
Knutson, Knut, truck driver	1,314.80		
Koch, Lawrence A., truck driver	2,223.10		
Koerner, Ralph L., head lineman	1,227.48		
Kofoed, Allan P., caretaker	2,550.00		
Kondraski, Don (Dominic), truck driver	2,140.05		
Konraski, Edward L., laborer	536.95		
Koons, Lindley V., dist. maint. superintendent	6,000.00	285.60	
Koopmans, Menno S., landscape gardener	1,399.13		
Kovach, George M., laborer	1,898.75		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Krehbiel, Norman D., material checker	$ 40.00	$ .70	$
Kreiger, Wilfred P., truck driver	2,192.31		
Kron, Ervin V., paint machine operator	1,952.95		
Krueger, Walter G., bridge superintendent	4,800.00	192.75	
Kuenzli, Ralph W., truck driver	1,199.65		
Kuiper, Theo., paintman	1,425.00		
Kuiper, Wm. H., rollerman	2,582.68		
Laam, Homer V., motor grader operator	2,651.60		
Lachapelle, William G., laborer	133.00		
La Du, George J., truck driver	2,134.55		
La Grander, Clair G., section foreman helper	2,778.66		
Lakey, Eugene H., traveling motor grader operator	2,471.95	5.60	
Lakin, Wilbert H., laborer	119.41		
Laman, Arthur V., laborer	1,849.75		
Lamb, Ben H., material inspector	195.48	.50	
Lamb, Earl, laborer	818.00		
Lambert, Armond J., laborer	49.50		
Lancaster, Samuel C., foreman	1,920.00		
Landolt, Mike H., laborer	162.00		
Landon, Ray, right of way agent	86.67	29.80	
Lane, Benjamin F., mechanic	3,218.24	153.70	
Lane, Clyde A., truck driver	2,193.50		
Lane, Leaman L., truck driver	1,316.60		
Lane, Wandall S., laborer	1,657.95		
Langille, William A., office clerk & right of way agent	3,308.33	26.05	
Langley, Francis W., man & team	253.60		
Larfield, Donald C., laborer	115.00		
Larson, Irving L., clerk	127.74		
Larson, Oscar T., laborer	1,909.40		
Larson, Roland E., material inspector	10.00	2.95	2.08
Lathim, Kenley B., district maintenance office clerk	3,600.00		
Laughlin, Ather L., truck driver	1,549.15		
Laughlin, Chas. M., truck driver	1,951.13		
Laughlin, F. Kevin, timekeeper	3,268.35	54.60	
Laughlin, Marshall E., section foreman	3,120.00	3.40	
Lawrence, Camillous P., laborer	51.43		
Laws, Wendell P., section foreman	3,094.84		
Lawton, Richard R., laborer	2,084.05		
Layton, Harold D., boilerman	1,402.59		
Layton, Theo. T., watchman	880.10		
Leach, Warren R., section foreman	2,705.18	4.85	
Le Blanc, Adolph L., sign crew foreman	3,048.84		
Lebold, Cletus F., laborer	342.65		
Ledgerwood, Leo M., laborer	198.25		
Lee, Seth, sign shop painter	2,239.05		
Leech, Charles D., watchman	2,295.20		
Leffler, Arthur O., truck driver	2,168.26		
Le Gier, Lester P., section foreman helper	2,761.21		
Le Gore, Harry, laborer	797.80		
Lehman, Hal W., sign shop painter	2,240.98	8.30	
Lehman, J. Wm., sign shop painter	2,273.77	321.30	
Leiber, Kenneth W., laborer	190.50		
Leichhardt, Robert P., laborer	29.50		
Leisher, Lowell H., watchman	1,806.05		
Lenz, Clifford H., section foreman	2,965.18		
Leonard, J. Wesley, section foreman helper	2,667.60		
Lester, William M., assistant bridge carpenter	2,655.25		
Letts, Charles D., bridgeman	441.60		
Levenhagen, John C., truck driver	1,600.15		
Levin, L. Oscar, gate tender	2,400.00		
Levins, Roy M., bridgeman	1,947.60		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received Salary	 Expense Allowance	 Private car Mileage
Lewis, Cloyd, section foreman	$2,829.90	$	$
Lewis, Howard E., bridgeman	1,877.10	2.40	
Lewis, Jasper D., laborer	1,808.70		
Lewis, Marie B., stenographer	2,730.00		
Libby, Hollis W., chief locating engineer	7,380.00	381.60	
Lienhart, John D., truck driver	572.48		
Lilly, Kenneth E., laborer	195.25		
Lindsey, Floyd, mechanic	3,057.20	17.20	
Lindsley, Bruce E., laborer	1,905.27		
Lisenby, William P., laborer	286.00		
Lithgow, Wayne W., section foreman	3,120.00	3.40	
Litzenberger, Walter R., mechanic	3,220.40		
Lockington, Robert J., shoveler	751.87		
Lockington, Wm. Lewis, truck driver	926.05		
Lockyear, William L., assistant bridge foreman	3,240.00		
Lommasson, Allen J., chainman	414.14		
Long, Cullom C., bridge foreman	3,959.01	8.65	
Long, Clifford E., material inspector	96.67	.50	
Long, Willard W., section foreman	2,935.50		
Loper, Marvin R., laborer	260.50		
Lord, Max V., laborer	49.15		
Loter, Kenneth F., watchman	2,115.33		
Lovell, James A., laborer	1,997.50		
Low, Chas. E., office engineer	5,760.00	18.55	
Lower, Linden L., truck driver	2,138.46		
Lowery, Gayle V., laborer	101.10		
Lowery, Len H., laborer	31.50		
Lowery, Vester T., street inspector	2,442.63	17.40	
Lowther, Harold J., pilot car driver	111.83		
Lowther, John A., flagman	611.11		
Luark, Jn. M., man and team	246.60		
Lucas, Caroline, clerk	2,640.00		
Lucas, Dennis S., laborer	26.00		
Lucas, Forrest F., laborer	398.62		
Lucas, Oscar C., pilot car driver	596.30		
Lucas, Prince A., material inspector	2,477.92	11.90	
Luckett, Harry W., motor grader operator	2,283.05		
Lund, Donald, motor grader operator	2,407.15		
Lund, Martin, laborer	2,007.50		
Lutz, Louis Otto, section foreman	3,120.00		
Lyda, Herman C., carpenter	2,759.05		
Lyons, Lester A., bridgeman	2,366.60		
Lyons, Ralph V., truck driver	2,326.95		
Lytle, K. D., division engineer	9,600.00	793.05	
Lytle, Ted Wallace, laborer	1,297.50		
MacGregor, John H., district inspection engineer	1,200.00	24.30	7.20
Mackenzie, Kenneth V., laboratory assistant	3,600.00		
Mackey, Marvin L., laborer	190.20		
Macomber, Clarence A., section foreman helper	2,644.85		
Macomber, Nathaniel A., section foreman helper	2,654.60		
Maden, Arthur J., stockroom service man	2,385.76		
Madison, Eldon M., laborer	593.50		
Mahan, Claude, transitman	3,869.70		
Mahany, Orra L., clerk	2,160.00		
Main, Luke S., section foreman	2,946.45		
Maison, Clifford H., bookkeeper	3,680.00	51.00	
Malloy, Jack H., lineman	506.65		
Mangis, Maurice W., truck driver	1,409.00		
Manley, Harold L., chainman	128.51		
Mann, Bill M., assistant dist. maint. officeman	2,639.30	1.45	
Mann, Hubert S., street inspector	3,227.42		4.00

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Manning, Cecil L., district maintenance office clerk	$3,600.00	$	$
Manning, Chas. Walter, bridge foreman	3,960.00		
Manning, Clyde E., laborer	320.00		
Manning, Don G., acting manager	4,200.00	91.70	
Manning, H. Lawrence, chainman	354.84		
Manning, Kenneth W., laborer	1,404.75		
Marchbank, Frank B., bridge operator	3,360.00		
Marchi, Frank, laborer	255.64		
Marcott, Louis J., flagman	474.20		
Marker, Harold G., truck driver	1,429.05		
Marketta, Frank M., traveling pull grader operator	2,088.30		
Markman, Marvin, material inspector	23.33		
Mailman, George, park caretaker	163.06		
Marlton, Robert J., street foreman	2,175.61		
Mars, Lewis D., resident engineer	5,400.00		
Marshall, Claude O., truck driver	2,176.04		
Marshall, Kenneth J., laborer	1,234.50		
Martin, Benjamin A., locating engineer	6,000.00	83.15	
Martin, Darwin G., painter	815.30		
Martin, Fred D., shoveler	2,057.45		
Martin, Geo. L., apprentice raker	1,096.42		
Martin, Gilbert A., flushcoater	222.00		
Martin, Herman, section foreman helper	2,614.95		
Martin, Jn. E., section foreman helper	2,627.30		
Martin, Lester D., laborer	205.20		
Martin, Onie L., flagman	1,424.44		
Martin, William A., office attorney	3,570.00	96.65	
Martin, Wm. O., raker	1,948.67		
Martinak, Charles L., laborer	33.00		
Martinak, Joe E., motor grader operator	2,458.50		
Martinak, John G., section foreman	2,842.35		
Marts, Wayne A., laborer	52.00		
Mascall, Cedric C., section foreman helper	2,623.40		
Matott, Donald, laborer	167.10		
Mathews, Keith W., material inspector	901.15		
Mathews, Vione F., truck driver	316.50		
Mattingly, Alphonsus L., laborer	1,927.00		
Mauck, Alva G., topographer	3,300.00	1.00	4.75
Mauer, Mike J., laborer	1,991.20		
Maurer, John, miner's helper	903.30		
Maxwell, Milburn M., laborer	2,062.40		
Maxwell, Wilbert J., laborer	1,116.00		
May, Velma H., stenographer	1,984.35		
Mayer, Clarence N., section foreman helper	2,626.65		
Mayhew, Gayle V., truck driver	226.20		
Maynard, Claud O., sign crew foreman	3,535.00	11.90	
McArthur, John D., laborer	2,077.80		
McAtee, Robert L., bridgeman	2,318.50	6.05	
McBride, David T., special mechanic	868.97	127.24	
McBride, John L., truck driver	411.40		
McCafferty, John E., paint machine operator	1,875.10		
McCafferty, Ward L., chainman	1,801.27	3.00	
McCallister, Alan F., chainman	1,342.48	2.10	
McCallister, John W., engineer draftsman	5,160.00		
McCallister, Mark D., right of way agent	5,375.00	953.45	11.20
McCallister, Merle, laborer	446.35		
McCalvy, Joe A., axeman	734.51		
McCann, Eugene W., computor	1,958.64		
McCann, J. Lester, working foreman	2,648.70		
McCarthy, Julienne A., flagman	128.34		
McCarty, Elbert, laborer	1,859.35		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
McChesney, William S., right of way agent	$4,760.00	$ 407.40	$
McClain, Harvey E., section foreman	3,120.00		
McClary, Charlotte, secretary	2,937.50		
McClay, Taylor, truck driver	2,225.75		
McCluer, Dennis F., laborer	1,824.25		
McClure, Harry H., carpenter	1,166.95		
McClure, Walter R., motor grader operator	1,436.25	5.20	
McCollum, John W., section foreman	3,120.00		
McComb, Oliver G., head chainman	2,534.42	31.50	
McConnell, Benjamin F., laborer	203.39		
McConnell, Geo. Q., laborer	207.24		
McCormick, Ray M., laborer	552.00		
McCullough, C. B., assistant state highway engineer	12,000.00	610.10	
McCumsey, Harvey L., laborer	1,967.00		
McCutcheon, Charles E., section foreman	3,115.81		
McDonald, Rollin H., gas pump attendant	2,212.40		
McElfresh, Frank E., laborer	2,118.25		
McEwen, Orville S., head chainman	1,119.99	12.10	
McFarland, James, administration assistant	5,250.00	26.45	6.40
McFarlane, Ronald T., street inspector	3,359.17		
McGahan, Virgil, mechanic	3,247.60	76.85	
McGee, John F., transitman	4,080.00		
McGee, Wm. F., flushcoater	970.07		
McGee, W. Roy, laborer	2,656.10	2.30	
McGinnis, Webb, section foreman	3,120.00		
McGinnis, Wm. G., truck driver	1,481.73		
McGreer, Ellis G., section foreman	3,120.00		
McGuire, Walter V., laborer	169.75		
McGuire, Warren G., lineman	101.50		
McHugh, D. Donald, raker	2,142.18		
McIrvin, Alexander O., street inspector	3,124.23	.75	
McKay, Paul, laborer	1,687.75		
McKean, Charles H., assistant bridge foreman	2,600.18	137.54	
McKenzie, Chester A., section foreman helper	2,687.98	6.50	
McKenzie, Richard L., truck driver	2,305.96		
McKenzie, S. Clare, motor grader operator	2,432.70		
McKeown, Robert J., material inspector	898.34	30.80	
McKillop, Wm., flagman	210.64		
McKinney, Chas. W., tender driver	1,418.26	5.65	
McKinney, Curtis C., chainman	1,453.33		
McKinney, James H., lineman	2,202.20		
McKinnon, Otis, section foreman	3,120.00		
McLeod, Walter W., section foreman	3,120.00		
McManus, Albert, bridge operator	3,160.59		
McMurray, James H., laborer	9.50		
McMurren, Cecil W., laborer	272.15		
McMurren, Joseph S., bulldozer operator	2,483.60		
McMurren, Samuel A., truck driver	1,875.95		
McNeil, Chester E., truck driver	2,114.71		
McPherson, James I., mechanic	2,738.66	60.75	
McReynolds, Francis W., material inspector	963.50		
McReynolds, Gladys, stenographer	776.77		
McReynolds, Lewis J., district maintenance officeman	3,600.00		
McReynolds, Ralph A., mechanic	2,932.34		
McWhirter, Max, laborer	93.00		
Meeks, John M., section foreman	3,120.00	2.80	
Meengs, Ray, laborer	229.00		
Meggett, Harry Ernest, bridgeman	2,403.00		
Meisel, Clair C., bridge inspector	4,200.00	515.65	
Melson, Lewis B., street inspector	858.07		
Melton, Harry C., general foreman	3,868.68	15.85	

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Melton, Luther R., section foreman helper	$2,427.60	$ 7.55	$
Melville, Jn. O., laborer	2,082.60		
Mendenhall, Valdemar A., caretaker	1,359.75		
Menegat, Peter J., head chainman	2,520.00		
Menegat, Russell I., material inspector	361.29	.50	
Mercer, F. E., mailing clerk	3,855.00		
Mercer, Maurice E., chainman	1,306.46	305.15	
Merchant, Ivan D., bridge designer	5,160.00	8.25	
Merrill, Donald L., laborer	52.26		
Merrill, Walter B., transitman	4,080.00	27.00	
Mershon, Louis J., bridge foreman	3,960.00		
Messenger, Elmer T., section foreman	3,120.00		
Messenger, Truman E., section foreman helper	2,229.58		
Messinger, Soloman K., laborer	2,238.00		
Meyer, Fred W., laborer and truck driver	2,092.20		
Meyers, Fred E., section foreman	1,320.00		
Meyers, Walter E., truck driver	1,502.66		
Millard, Samuel Guy, section foreman	2,951.97		
Miller, Adolph, carpenter	1,706.95		
Miller, Carl L., truck driver	514.13		
Miller, Carl W., laborer	136.50		
Miller, Claude S., mechanic	2,594.87		
Miller, D. Wayne, staker	804.00		
Miller, Earl H., welder	3,089.16	11.55	
Miller, Ellis D., section foreman helper	2,583.75		
Miller, Eugene L., jackhammer man	580.93		
Miller, George V., street inspector	3,358.39	14.55	
Miller, Harry L., truck driver	543.54		
Miller, Henry A., laborer	457.00		
Miller, Henry J., district maintenance superintendent	6,000.00	241.85	
Miller, Homer R., section foreman	3,120.00	8.10	
Miller, Howard F., laboratory assistant	500.00		
Miller, Jack G., section foreman helper	2,696.20		
Miller, James I., laborer	854.00		
Miller, John W., bridgeman	1,839.10		
Miller, Joseph, mechanic	3,334.20	91.60	
Miller, Leo G. E., laborer	177.00		
Miller, Marvin E., truck driver	2,480.10		
Miller, Michael E., truck driver	398.91		
Miller, Philip E., material inspector	1,440.86	.95	
Miller, Ralph T., truck driver	2,115.90		
Miller, Wm. H., section foreman	3,088.55		
Millett, Frank, watchman and janitor	2,613.45		
Million, Chas. L., section foreman helper	2,631.20	14.20	
Mills, James S., laborer	101.01		
Mills, John W., flushcoater	410.30		
Mills, J. Emerson, truck driver	2,393.55		
Miltenberger, Howard C., section foreman helper	2,666.30	2.85	
Miltenberger, Orville C., laborer	1,481.25	6.10	
Miner, Asberry, extra gang foreman	2,532.57		
Minkiewitz, Peggy, typist	782.33		
Minkiewitz, Wm. J., assistant real property officeman	3,890.00		
Minthorn, Walter, bridge foreman	3,960.00		
Miranda, Harold J., welder	3,043.70		
Mishler, Isabelle B., key punch operator	1,833.89		
Mitchell, Truman, truck driver	2,124.31		
Mix, Howard L., laborer	110.50		
Mix, C. Noel, pitman	588.99		
Moffitt, Ivan A., laborer	55.00		
Moffitt, John W., truck driver	812.95		
Moffitt, Victor L., foreman	4,116.67		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Mollinet, Richard E., transitman	$4,080.00	$ 78.00	$
Monda, Melvin H., surface foreman	2,817.48		
Monner, Raymond A., truck driver	2,222.10		
Monroe, Clarence M., truck driver	1,886.40	15.15	
Monroe, Joe R., section foreman	3,120.00		
Monson, Agnes, stenographer	2,400.00		
Monson, Ann L., secretary	2,940.00		
Moon, Oris O., truck driver	2,073.90		
Moore, Donald, truck driver	247.10		
Moore, Ernest S., bridge foreman	3,960.00		
Moore, Frank W., structural inspector	1,371.77	35.50	
Moore, Fred, caretaker	1,382.00		
Moore, Harry, laborer	1,392.25		
Moore, Homer R., section foreman helper	2,451.00		
Moore, James Claude, section foreman helper	2,708.23		
Moore, James P., truck driver	1,999.85		
Moore, Marvin C., kettleman	212.35		
Moore, Merville W., bridge inspector	4,115.32	2.00	
Moore, Reuben E., section foreman helper	2,665.65		
Moore, Roy G., miner	1,715.30		
Morelock, James E., locating engineer	4,392.90	12.20	
Morgali, Gladys M., clerk	2,340.00		
Morgan, Bruce A., laborer	517.50		
Morgan, Frank D., draftsman	3,508.39	1.50	
Morgan, Hilary Harland, truck driver	2,102.06	1.75	
Morisette, Clifford H., pitman	2,193.30	5.60	
Morisette, George L., truck driver	3,168.30		
Morris, D. A., truck driver	2,265.45		
Morris, Harrison Glen, section foreman helper	2,518.10	.50	
Morris, Jere, section foreman helper	2,663.70		
Morris, J. Gordon, truck driver	1,109.65		
Morrison, George N., laborer	1,054.75		
Morse, Frank, truck driver	145.65		
Morse, Frederick W., pruner	1,310.34		
Mortensen, Carl T., assistant bridge carpenter	2,517.45		
Morton, Ray R., truck driver	280.70		
Moser, August, mechanic	3,012.38		
Mott, Guy H., foreman	2,967.50		
Mott, Ivan L., truck driver	137.38		
Mountain, Robert T., head chainman	1,118.06	17.00	
Muckridge, Frank O., rollerman	1,237.90		
Mudd, C. Russell, clerk	3,199.83		
Mulkey, Chester R., electrical helper	2,302.22	797.10	
Mulligan, Frank A., raker	1,502.18		
Mumma, Van I., chainman	881.73		
Munhollon, Harold C., timekeeper	1,843.88		
Munjar, Herman, truck driver	2,010.50		
Munn, Ralph O., section foreman helper	2,671.51		
Murphy, Wayne E., head chainman	2,440.00	.50	
Murray, John W., laborer	274.50		
Myers, Fred J., assistant manager financial survey	4,200.00		
Myers, Hugh E., head lineman	1,847.55		
Myers, James E., transitman	4,080.00	45.10	
Myers, Milbourne J., material inspector	350.00	3.20	
Myers, Ralph D., laborer	178.00		
Myres, Carl R., laborer	240.75		
Mything, Edwin O., flagman	45.00		
Naillon, Duane J., material inspector	100.80		
Nautz, George T., laborer	1,027.00		
Nash, E. M., general foreman	3,951.48	15.20	
Nash, John W., office assistant	5,760.00	66.00	

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Nash, Jud D., spotting foreman	$1,141 55	$	$
Nathnagle, Henry S., laborer	40.00		
Neal, Keith D., laborer	248.50		
Neavoll, Blonson D., section foreman helper	2,406.95		
Nedrow, Jesse W., laborer	2,047.50		
Nedrow, Lincoln H., caretaker	528.00		
Nelson, Chas. A., section foreman helper	1,321.45		
Nelson, James D., assistant cost analyst	3,600.00	352.80	3.16
Nelson, Leon H., draftsman	3,828.39	1.35	
Nelson, Melvin B., material inspector	83.12		
Nelson, Robert V., transitman	3,866.45	25.90	
Nelson, Roger, kettleman	313.90		
Nelson, Welmer E., mechanic	1,327.58		
Newbill, Donald N., truck driver	292.10		
Newlin, James D., laborer	60.00		
Newman, William H., bridge operator	2,355.00		
Ney, W. H., clerk	3,840.00		
Nice, Robert D., pitman	10.45		
Nichols, Fred R., raker	1,349.42		
Nichols, Otis A., section foreman helper	2,729.35	3.90	
Nicholas, Ernest M., section foreman helper	2,474.55		
Nichols, Ray J., mechanic	3,028.70		
Nielsen, John, laborer	164.00		
Nielsen, Lawrence J., laborer	40.00		
Nielson, Fred A., laborer	1,035.00		
Nieswander, Frank E., stockman	2,756.29		
Niles, Clifford D., field assistant	18.60	2.60	
Niles, Franklyn W., street inspector	2,710.58		
Noeske, Carl A., chainman	1,485.27	14.20	
Noland, Walter D., laborer	52.00		
Noonchester, Myrtle A., stenographer	2,200.00		
Nopar, Paul, boilerman	157.30		
Norberg, Oscar H., computor	2,950.00	.50	
Norley, Alvin W., machinist	3,273.00		
Nordquist, Niels B., bridge draftsman	3,339.90		
Nordyke, T. Homer, laboratory assistant	3,600.00		
Norval, Kenneth Clair, truck driver	1,481.85		
Novotny, Stanley, raker	275.27		
Nyberg, Karl H., clerk	3,120.00		
Nyhus, Charles Ed, section foreman helper	2,399.80		
Oakes, John R., computor	2,750.00		
Oakley, Lawrence W., tabulating machine operator	2,791.58		
O'Conner, John L., laborer	557.00		
Odell, John M., bridgeman	2,391.90	158.85	
Oliver, Herman, commissioner		16.55	15.52
Oden, Leslie R., laborer	2,052.00		
Officer, Floyd L., bridgeman	2,390.60		
Offill, Glenn M., laborer	2,076.75		
Oldenburg, Arthur E., machinist foreman	3,559.95		
Oldenburg, Henry, blacksmith helper	2,527.85		
O'Leary, Wm. J., flagman	62.75		
Olmstead, D. D., fireman	2,760.00		
Olmstead, Edgar C., laborer	482.25		
Olmstead, Orrin E., truck driver	1,086.75		
Olsen, Bernard C., truck driver	2,177.60	3.00	
Olson, Arthur E., material inspector	116.13	2.10	
Olson, Ernest N., chainman	2,170.00		
Olsen, Frank W., truck driver	2,299.20		
Olsen, Hans O., laborer	1,556.50		
Olsen, Helmer, section foreman	3,120.00		
Olsen, Joe F., raker	1,095.30		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Olson, Louie, surface foreman	$2,238.47	$ 2.10	$ ....
Olson, Manfred W., plant inspector	3,188.71	16.75	....
Olsen, Peder J., section foreman helper	2,566.53	....	....
Olsen, Raymond R., section foreman helper	3,062.49	....	....
Olson, Walter A., apprentice raker	1,092.64	....	....
O'Neil, Charles F., computor	3,600.00	....	....
O'Neil, Virgil G., office assistant	5,300.00	....	....
O'Neill, Raymond W., laborer	428.75	....	....
O'Neill, Wm. L., kettleman	965.88	....	....
Onstatt, Sterling F., pull grader operator	2,340.35	....	....
Opedal, Tom, transitman and draftsman	4,053.00	....	....
Orcutt, Howard D., laborer	1,016.40	....	....
Ordway, Leo E., oiler driver	1,264.90	....	....
Orey, A. Donald, truck driver	1,525.25	5.45	....
Orvis, George T., section foreman	3,120.00	....	....
Osterman, Pearl, typist	782.57	....	....
Ostrom, S. William, Jr., chainman	550.75	21.45	....
Otey, Max M., bridgeman	55.20	....	....
Otis, Ralph G., chainman	2,395.16	2.55	....
Ott, Roxie G., laborer	353.95	....	....
Otten, Geo., landscape engineer	7,200.00	485.75	114.56
Otterstrom, Albert, laborer	2,028.88	....	....
Overdick, Alfred W., truck driver	1,207.25	....	....
Owen, Henry H., laborer	735.00	....	....
Owens, Ermel R., storekeeper	4,800.00	16.00	....
Owens, Hugh W., bridgeman	165.00	....	....
Oxford, Clayborn, boilerman	710.88	....	....
Pace, Thomas M., flagman	22.00	....	....
Pade, Fred A., office assistant	2,400.00	....	....
Pahl, Samual A., material inspector	273.33	2.80	....
Painter, Robert I., boilerman	2,053.55	3.05	....
Palmer, Bud (Delbert B.), truck driver	1,991.50	....	....
Palmer, Marion W., material inspector	112.90	....	....
Panger, Noah, timekeeper	1,789.86	....	4.10
Pankey, Elmer T., laborer	1,875.25	....	....
Parberry, Jay J., laborer	1,854.25	....	....
Park, Ernest S., watchman	1,272.81	....	....
Park, Fay R., laborer	1,489.50	....	....
Parker, Clarence Alfred, truck driver	2,439.90	....	....
Parker, Clarence W., land appraiser	6,150.00	854.70	....
Parker, Ernest E., laborer	179.50	....	....
Parker, John H., laborer	1,551.30	....	....
Parkes, Douglas B., chainman	2,400.00	....	....
Parks, Francis L., laborer	28.00	....	....
Parks, Harry W., section foreman	3,120.00	....	....
Parmenter, Bud (Jerome), blacksmith	2,729.28	....	....
Parson, Arvid F., resident bridge engineer	4,696.77	.40	....
Parsons, Leland E., office assistant	6,000.00	....	....
Parsons, Paul V., serviceman	2,356.38	....	....
Parton, Arthur B., laborer	2,090.50	....	....
Patterson, Esther, typist	566.13	....	....
Patterson, James B., section foreman	3,069.61	....	....
Patton, Paul L., truck driver	1,745.23	....	....
Patton, William R., radio technician	4,440.00	....	....
Paulsen, Chester E., street inspector	3,458.07	38.90	....
Paxson, G. S., bridge engineer	10,800.00	637.60	....
Payne, Charles S., bridgeman	2,387.48	....	....
Payne, Irene V., secretary	2,940.00	38.85	....
Payton, Otty C., laborer	1,997.00	....	....
Pearce, Roy E., stockman	2,610.00	....	....
Pearl, John J., computor	3,600.00	263.75	....

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Pease, Edwin A., draftsman	$3,529.00	$ 20.25	$
Peck, Jay E., resident engineer	6,000.00	186.40	
Peebles, Frank M., laborer	1,798.00		
Peek, Norman H., sign crew foreman	3,360.00	712.70	
Peer, Vern L., laborer	2,052.00		
Pence, Earl M., chainman	900.00		
Pence, John T., plant foreman	1,739.50		
Pennell, Harry C., truck driver	2,259.40		
Perkins, George N., truck driver	2,254.70		
Perkins, Vaughn C., bridge foreman	3,960.00		
Perkins, Wm. G., bridge foreman	3,960.00	9.80	
Perry, Jasper A., draftsman	3,405.61	27.25	
Perry, Raymond W., chainman	1,077.42	.40	
Persinger, Lester, kettleman	775.26		
Person, Robert P., material inspector	90.00	8.75	
Peters, Claude S., carpenter	2,867.10		
Peters, Marshall G., material inspector and chainman	1,699.62		
Peters, Stanley H., apprentice raker	845.35		
Peterson, Carl A., resident engineer	6,000.00		
Peterson, Carl A., raker	1,417.42		
Peterson, Fred, stockman	2,700.00		
Petteys, Gilbert R., laborer	558.93		
Petzel, Carl R., laborer	255.36		
Peugh, Orie J., truck driver	2,230.85		
Pfifer, Claude E., draftsman	4,425.00		
Phelps, John A., locating engineer	5,850.00	160.00	
Phillips, Gerald, truck driver	292.53		
Phillips, Tracy T., laborer	1,597.25		
Phillips, W. Walter, timekeeper	2,626.45		
Philmlee, Arthur M., laborer	80.50		
Pierce, Walter M., laborer	272.50		
Pilcher, John R., chainman	183.87		
Pillow, Curtis H., laborer	1,950.35		
Pinkerton, Donald E., laborer	224.00		
Piper, Theo. R., carpenter	2,700.95		
Pitkin, Rollin A., laborer	14.50		
Pittman, Fred L., section foreman	3,120.00		
Pitts, Wilber V., laborer	116.88		
Poetschat, George, laborer	440.10		
Pomeroy, Frank C., laborer	59.50		
Pool, Walter R., laborer	46.00		
Poole, Walter V., motor grader operator	2,452.20		
Pope, Ralph Ivan, bridgeman	2,341.75	10.15	
Porter, Roderick L., transitman	4,080.00		
Potter, Dorothy M., stenographer	2,276.94		
Potter, James W., laborer	86.25		
Prather, Clair, truck driver	131.75		
Pratt, James D., watchman	1,277.53		
Pratt, Rollin D., chainman	1,391.84	1.00	
Presley, Clifford, truck driver	2,342.40		
Presnall, Dwight H., flagman	814.33		
Price, Carl M., section foreman helper	2,404.50		
Probasco, Claude A., truck driver	444.28		
Probert, S. H., office engineer	10,800.00	13.45	
Prock, Vernon E., truck driver	2,401.80		
Prout, Roy A., section foreman helper	2,669.55		
Puter, Coy S., kettleman	1,298.21		
Putnam, Alice, secretary	3,477.96	.50	4.00
Putnam, James E., chainman	1,083.87	16.10	
Putnam, Joseph H., section foreman	3,120.00		
Pyshney, Charles, bridgeman	1,590.10		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Query, Floyd A., district maintenance office clerk	$3,600.00	$ 4.40	$
Rabens, Elmer R., sign crew foreman	3,360.00	877.85	
Ralston, William G., laborer	131.25		
Ramsey, Erle W., laborer	831.00		
Ramsey, Leonard L., truck driver	2,159.70		
Ramsey, Lowell C., truck driver	1,971.10		
Rands, Royal H., laborer	2,452.00		
Rappe, R. G., laborer	844.75		
Rasche, Grayce M., stenographer	2,550.00	2.45	
Rasmussen, Donald J., laboratory assistant	3,600.00	8.10	
Rasor, James M., grader operator	2,217.70		
Ratzeburg, Verne L., truck driver	890.80		
Read, Gustavus C., foreman	3,120.00		
Redding, Ray M., laborer	2,084.45	6.50	
Reding, Clarence P., laborer	96.50		
Redman, Geo. L., spotting foreman	996.53		
Redman, Jacob A., draftsman	4,425.00		
Reed, Ernest D., truck driver	186.45		
Reed, Leo. V., computor	3,600.00		
Reeder, Harry B., computor	3,390.00		
Reeder, John D., section foreman helper	2,373.00	8.20	
Reeves, Gilbert H., material inspector	138.71	.40	
Reeves, Myrtle L., stenographer	2,640.00		
Reeves, W. A., office engineer	6,200.00		
Regnell, Walter B., material inspector	2,400.00	5.85	
Reher, Alvin G., chainman	2,101.43	76.70	
Reich, Emil A., laborer	1,327.00		
Reichwein, Clyde E., truck driver	787.10		
Reick, Wilhelm A., laborer	90.41		
Reid, Arthur W., truck driver	541.58		
Reidy, Paul F., flagman	425.81		
Reigel, Adin R., lineman	1,142.90		
Reimers, William A., leverman	131.95		
Reinhart, Everett W., truck driver	493.28		
Remington, Chas. J., truck driver	2,171.50		
Remington, Robert R., laborer	424.59		
Remington, Roy W., requisition clerk	4,080.00		
Rennings, Peter J., draftsman	1,256.42		
Repsleger, Julius, laborer	143.00		
Rerick, Arthur R., raker	831.01		
Reynvaan, Arthur C., truck driver	2,236.85		
Rheinsburg, Robert G., transport driver	827.60		
Rhodes, John W., head chainman	2,400.00	13.20	
Richards, Carl P., bridge inspector	122.50		
Richards, La Rue, chainman	413.34	.50	
Richardson, A. Truman, mechanic	2,508.28		
Richardson, Edw. H., laborer	2,048.70	2.85	
Richardson, Elbert E., working foreman	2,555.40		
Richardson, Erven L., laborer	1,982.00		
Richardson, Floyd C., truck driver	2,176.80		
Richardson, Jake W., truck driver	1,268.75		
Richardson, Roy J., boilerman	97.50		
Richardson, Vernon T., laborer	792.50		
Rickard, Earl, laborer	800.10		
Ricketts, Ellsworth G., bridge testing engineer	6,260.00	597.05	
Rickey, Esther M., secretary	3,240.00		
Rief, Edward J., assistant district inspecting engineer	2,066.45		
Riley, James M., laborer	1,940.50		
Ringsmeyer, Jules, supervising mechanic	36.00		
Ripley, Gerald R., truck driver	2,154.90		
Rippee, Oscar C., section foreman helper	2,548.65		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Risen, Edward, street inspector	$3,062.90	$	$ 4.10
Risley, Chas. A., truck driver	1,517.60		
Ritchie, Clyde T., bridgeman	67.80		
Ritchie, Florence, stenographer	2,364.84		
Roadman, Harold E., chainman	913.33	5.35	
Roake, Theo. C., bridge designer	4,800.00		
Roark, Wm. D., section foreman helper	2,606.50		
Roberts, Archie V., section foreman helper	2,734.55	2.95	
Roberts, Fairfax M., chainman	1,893.55		
Roberts, George W., mechanic	2,691.14	30.60	
Roberts, Glenn E., resident engineer	6,000.00	32.20	
Roberts, John M., laborer	1,983.75		
Roberts, Kenneth C., transitman	4,080.00	24.30	
Roberts, Ray S., laborer	2,121.55		
Roberts, Rulo M., truck driver	233.75		
Roberts, Walter J., laborer	1,949.50		
Robertson, Jack E., truck driver	123.70		
Robertson, James, section foreman helper	2,661.75		
Robertson, Lewis E., section foreman	3,120.00	7.30	
Robertson, Paul W., section foreman	3,120.00	4.20	
Robertson, Ralph E., jackhammer man	1,432.53		
Robertson, Ralph J., laborer	2,156.00	4.40	
Robins, William N., laborer	303.50		
Robbin, Chas. D., timekeeper	1,150.31		
Rockafellow, Arthur W., section foreman	2,933.52		
Rodabaugh, Harold W., section foreman helper	2,175.95		
Rodgers, Dan C., blacksmith	1,344.26		
Roe, Arthur S., chainman	1,423.33	13.45	
Roe, Clarence L., truck driver	2,265.65		
Rogers, E., special investigator	110.00	61.98	28.26
Rogers, George, truck driver	2,419.80		
Rogers, Perry L., rollerman	162.50		
Rohner, Joseph E., laborer	1,127.75		
Rohrbough, Darel D., transitman	4,080.00		
Roland, George W., section foreman	3,120.00	2.80	
Roland, J. Harold, truck driver	757.98		
Roley, Paul C., laborer	161.61		
Roper, Earl J., section foreman helper	2,774.54		
Roscoe, Albert, watchman	2,277.26		
Rose, Ann V., secretary	3,000.00	5.25	
Rosecrans, Richard J., bridge inspector	4,200.00		
Ross, Claude B., raker	2,209.16		
Ross, George W., division office engineer	4,800.00		
Rossiter, Austin G., laborer	141.00		
Rother, George M., mechanic	3,199.20		
Rotrock, Kenneth D., truck driver	1,795.99		
Rounds, Tunis D., truck driver	2,102.60	3.40	
Rountree, Frank B., truck driver	2,252.80		
Rousau, Joe N., bridgeman	2,184.60		
Rowley, Cecil R., laborer	80.00		
Rowley, Willard H., watchman	991.65		
Ruble, Zelle, secretary first class	2,246.05		
Ruggles, Chas. A., laborer	2,031.75		
Rullman, Charles, right of way engineer	5,400.00		
Rupert, Ethel, secretary	3,240.00		
Russell, Seth C., laborer	246.25		
Ruzicka, Frank J., truck driver	473.63		
Ryan, Fred L., material inspector	112.90	.50	
Ryjeske, Bruno B., laborer	1,718.38		
Rykard, Clarence W., boilerman	641.53		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Sabin, William U., assistant bridge carpenter	$2,548.43	$	$
Sachtler, Louis O., truck driver	483.93		
Sacre, Lyle J., assistant carpenter	2,498.03	1.50	
Sage, Delburt J., district maintenance superintendent	6,000.00	248.95	
Saling, Earl F., engineer assistant	4,200.00		
Salyer, Roy O., truck driver	142.50		
Sanche, Henry, laborer	191.45		
Sanders, Bert J., laborer	535.30		
Sanders, Ed. A., pull grader operator	2,088.55		
Sanford, Vivian P., tow blade operator	2,069.95		
Saull, Oney W., laborer	2,033.00		
Savage, Chas. W., shoveler	632.33		
Sawyer, Joshua S., computor	2,940.54		
Say, Harold B., director of Travel and Information Department	8,290.00	842.55	12.48
Scarbrough, Roy C., section foreman	3,120.00		
Schannep, I. M., title examiner	6,000.00	86.40	22.80
Scherff, Winston R., truck driver	304.58		
Schertenlieb, Edwin F., section foreman	3,120.00		
Schevenius, C. Rudolph, truck driver	2,442.00	5.80	
Schildmeyer, Lloyd E., laborer	503.50		
Schisler, Chas. E., laborer	125.25		
Schlegel, Sam J., raker	1,115.03		
Schneberk, Mathew M., raker	1,325.97		
Schneider, Carl C., bridge designer	4,800.00	2.15	
Schoenwald, John H., powderman	1,667.50		
Schooler, Laverne, laborer	281.00		
Schoppert, Guy, street foreman	2,549.44		
Schott, Robert R., pump attendant	517.10		
Schrieber, Francis F., truck driver	407.13		
Schrock, Enos, apprentice raker	896.33		
Schrock, Manassa, truck driver	614.18		
Schulson, Lorence B., truck driver	1,254.71		
Schultz, Eberle H., field assistant	9.00	2.80	
Schurman, Robert W., laborer	1,703.80		
Schwering, Walker E., section foreman	3,120.00	10.90	
Scober, Thomas Earl, laborer	1,717.00		
Scofield, Willard J., computor	3,003.33	3.15	
Scorby, Robert L., miner's helper	1,915.98		
Scott, Francis G., laborer	260.13		
Scott, John H., resident engineer	6,000.00	25.00	
Scroggin, Walt C., truck driver	2,300.15		
Scull, William C., draftsman	3,375.48	65.15	
Seaman, Owen F., street inspector	3,035.18	21.35	
Sears, Henry C., bridgeman	2,392.20	8.80	
See, Clinton E., load spotter	1,228.72	3.30	
See, Keith L., rollerman	2,185.76	24.35	
Seeley, C. C., district maintenance superintendent	6,000.00	294.65	
Sehon, Howard L., material inspector	425.81	21.60	
Sein, Ernest M., laborer	1,353.50		
Sellers, Joe, fireman	2,752.59		
Sellers, Roy C., street foreman	2,646.74		
Sellers, Victor E., truck driver	1,617.95		
Sellwood, Wm. A., paintman	1,164.78		
Senn, Ernest E., bridgeman	2,129.30		
Shafer, Floyd R., faller	2,442.10		
Shannon, Eldon D., tender driver	2,294.50		
Sharp, Ray D., laborer	259.75		
Shaver, B. W., truck driver	2,089.20		
Shaver, Ray D., laborer	791.00		
Shaw, Archie C., chainman	2,400.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Shaw, Lloyd P., draftsman	$4,080.00	$	$ ....
Sheaffer, Clifford L., chainman	1,216.67	.50	....
Shearer, Chester R., watchman	1,403.65	....	....
Shearin, Stewart W., laborer	116.50	....	....
Sheldon, Clarence E., kettleman	1,163.95	....	....
Sheldon, Eugene R., timekeeper	2,305.10	....	....
Sheldon, Howard G., plant foreman	2,505.43	....	....
Sheldon, Wm. A., gate tender	888.07	....	....
Shelton, George H., working foreman	2,479.43	....	....
Shipflin, Julius, watchman	1,959.46	....	....
Sheridan, Kenneth L., laborer	212.00	....	....
Sherman, Jack H., truck driver	711.10	....	....
Sherman, John M., bridgeman	1,225.50	....	....
Sherrett, Vernon C., bridge foreman	3,960.00	....	....
Shields, Luke S., bridge designer	4,800.00	....	....
Shindler, Marie, stenographer	2,410.00	....	....
Shinkel, Frank, section foreman	2,828.09	....	....
Shinn, Lowell E., invoice clerk	3,125.00	....	....
Shipman, Clyde J., laborer	639.75	....	....
Shirley, Aileen D., typist	1,779.34	....	....
Shirley, Kenneth E., laborer	645.60	....	....
Shopmyer, Carl J., laborer	618.75	....	....
Shough, Guy R., sign crew foreman	3,360.00	181.50	....
Shroyer, Gail R., section foreman	3,120.00	....	....
Sijota, Frank W., bridge operator	3,760.00	....	....
Sim, Henry, mechanic	3,274.40	35.15	....
Sim, Tom R., general foreman	4,283.55	13.90	....
Simmons, Harold V., material inspector and street inspector	3,580.58	8.20	....
Simmons, J. Arden, paint machine operator	1,542.95	....	....
Simmons, Wilbur B., laborer	1,127.00	....	....
Simms, Sylvander, transitman	3,934.20	56.95	....
Simon, Floyd H., assistant bridge foreman	3,026.25	....	....
Simons, Carl O., motor grader operator	664.99	....	....
Simons, Walter E., truck driver	167.80	....	....
Simonsen, Harry E., truck driver	217.83	....	....
Simpson, H. Bert, draftsman	4,425.00	....	....
Simpson, John E., laborer	194.50	....	....
Simpson, Kirk, computor	3,600.00	....	....
Simpson, L. Paul, district maintenance officeman	3,600.00	23.15	....
Simpson, Rockwell, head chainman	2,520.00	15.00	....
Simpson, Roy L., truck driver	603.70	....	....
Simpson, Tom W., shovel operator	2,795.95	....	....
Sims, Paul M., laborer	1,553.08	....	....
Sinclair, Hugh R., truck driver	2,213.40	4.00	....
Sipprell, Ralph B., division office engineer	4,800.00	84.40	....
Skaggs, Eldie, mechanic	3,452.19	13.65	....
Skelley, Ernest A., chief draftsman	7,200.00	....	....
Skelton, Albert G., dist. maint. superintendent	6,000.00	139.50	....
Skelton, Joseph T., resident bridge engineer	6,000.00	....	....
Skubovius, Ruben E., bridgeman	539.50	....	....
Slack, Addison W., laborer	1,924.35	....	....
Slack, Albert H., man and team	161.10	....	....
Slack, Edwin N., laborer	1,175.40	....	....
Slaught, David C., transitman	4,080.00	106.40	....
Slavens, Charles C., resident engineer	6,000.00	46.75	....
Sloss, Jack W., bridgeman	1,801.78	6.25	....
Slover, Clifford W., section foreman helper	2,148.75	....	....
Small, George W., motor grader operator	2,353.10	....	....
Smith, Basil D., bridgeman	1,133.40	....	....
Smith, Billy H., flagman	847.50	....	....

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Smith, Carl F., auditor	$6,000.00	$	$
Smith. Chas. A., shovel operator	3,039.70	3.00	
Smith, Darrel E., power mower operator	118.95		
Smith, David N., truck driver	91.20		
Smith, Dexter R., bridge designer	6,000.00	14.75	
Smith, Earl R., boilerman	157.95		
Smith, Edward E., pull grader operator	2,224.55		
Smith, Frank D., laborer	867.50		
Smith, Fred G., laborer	375.02		
Smith, Geo. W., section foreman	3,120.00		
Smith, Harry R., tender driver	2,250.95		
Smith, Herbert A., miner's helper	1,812.85		
Smith, H. G., construction engineer	10,579.84	709.30	
Smith, James P., laborer	222.02		
Smith, James W., laborer	222.43		
Smith, J. Elton, section foreman	3,120.00	9.60	
Smith, Lee V., section foreman	2,955.98		
Smith, Leland C., bulldozer operator	1,168.90		
Smith, Leonard C., laborer	1,204.50		
Smith, Leslie R., surface foreman	1,111.94	3.40	
Smith, Llewellyn Seward, pull grader operator	2,205.65		
Smith, Malcolm G., assistant cost analyst	3,600.00	589.70	
Smith, Marvin R., laborer	802.85		
Smith, Owen E., material inspector	2,004.69	3.70	
Smith, Richard W., assistant timekeeper	339.31		
Smith, Russell M., division office engineer and resident engineer	5,125.00	8.85	
Smith, Ruth M., filing clerk	1,847.03		
Smith, Stanley G., truck driver	2,093.75		
Smith. Vern O., laborer	141.71		
Smith, Walter R., tow blade operator	1,992.00		
Smith, William J., stakeman	101.61		
Smith, William P., laborer	264.50		
Smitton, Laurence C., resident bridge engineer	5,400.00		
Snider, Thomas A., truck driver	429.81		
Snyder, W. Raymond, laborer	2,065.15	1.00	
Soleini, Harold G., section foreman	3,120.00		
Solomon, Vernon B., traveling motor grader operator	2,644.85		
Sommerville, Thomas, material inspector	356.03	6.05	
Sonner. Bill, machinist	3,191.00		
Sorenson, Edward W., section foreman helper	2,777.14		
Sothman, Geo., district maintenance superintendent	6,000.00	185.42	
South, Raymond E., laborer	2,016.00		
Southwick, Frank B., labor and team	1,320.30		
Spagle, Ray A., street foreman	2,196.51	5.15	
Speaker, Clifford B., transitman	4,080.00		
Spencer, Albert W., head chainman	2,597.33	10.85	
Spencer, Chas. W., laborer	806.90		
Spencer, Roy L., material inspector	138.71		
Sperling, August L., flagman	580.76		
Spinney, Arthur C., plant foreman	2,827.02		
Spitler, Albert J., laborer	233.00		
Spooner, Harold L., draftsman	4,080.00	126.00	
Spray, Keith, laborer	152.00		
Springer, Chester G., inspector	3,060.70	4.10	
Spurlock, W. Milton, section foreman helper	2,510.75		
Squires, Weldon C., truck driver	1,355.90		
Stacey, Bernard W., burnerman	214.08		
Stafne, Ben E., laborer	53.00		
Staley, James D., truck driver	1,269.85		
Stamper, Claud L., section foreman	3,120.00		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Stankavich, Matt M., truck driver	$2,084.16	$	$
Stanley, Robert T., bridge designer	4,525.00		
Stanton, Wayne A., laborer	217.31		
Starbuck, Mary, revolving fund clerk	1,500.00		
Starkey, Floyd A., foreman	4,256.00	40.40	
Starr, Chester C., laborer	300.00		
Steeprow, Harvey R., laborer	1,679.75		
Steffgen, Michael P., truck driver	281.20		
Stein, Gilbert L., office assistant	2,414.00		
Steinbrugge, Karl V., field assistant	14.40	2.40	
Stellman, John A., laborer	192.45		
Stephens, Clifford A., chainman	441.38	1.90	
Stephens, Riley O., laborer	739.35		
Stephens, Roy P., laborer	2,113.15	3.50	
Stephenson, Levi P., mechanic	3,208.31	3.20	
Stephenson, Mervin, bridge construction engineer	7,560.00	845.90	
Stevens, Jack V., laborer	519.36		
Stevens, Kennie S., laborer	129.38		
Stevens, Merton A., laborer	128.00		
Stevenson, Earl L., computor	3,000.00		
Stevensen, Frank W., stone mason	2,890.75		
Stevenson, Glen O., draftsman	3,640.00	274.10	
Stewart, Ivor N., officeman	3,600.00		
Stewart, John C., chainman	1,115.00	.45	
Stewart, Mark J., burnerman	291.43		
Stewart, Milo M., head chainman	2,520.00	102.85	
Stewart, Rudolph G., rollerman	2,238.00		
Stewart, Victor V., lineman	970.45		
Stewart, Wm. H., head lineman	1,247.30		
Stiffler, William W., assistant maintenance engineer	7,560.00	743.40	
Stingley, Homer T., laborer-truck driver	137.05		
Stinnett, Chester L., bridge inspector	2,640.65	4.60	
Stobie, John T., motor grader operator	2,292.75	5.90	
Stoddard, Clinton F., truck driver	2,274.39		
Stoddard, Dana E., assistant gardener	2,325.57	33.85	
Stoddard, Hugh P., night watchman	2,580.00		
Stoddard, Wm. L., load spotter	1,565.50		
Stokes, Elmer E., flagman	216.31		
Stoltz, Wm. A., tender driver	569.59		
Stone, Henry E., laborer	1,820.50		
Stone, William V., man and team	1,156.90		
Storck, Virginia D., stenographer	2,140.00		
Stormont, Theodore P., laborer	329.50		
Stouder, Chester H., motor grader operator	2,200.80	2.30	
Stough, Edward W., watchman	2,490.50		
Stout, James, laborer	57.00		
Stout, Jess F., laborer	96.50		
Stout, John R., draftsman	3,814.20	10.10	
Stoutt, Lewis L., laborer	265.30		
Stoutt, Paul T., section foreman	3,120.00		
Strait, Donald F., laborer	60.00		
Stratton, Lowell M., transitman	3,763.23	.90	
Stream, Earl E., district maintenance office clerk	3,600.00	13.75	
Stretch, William R., timber inspector	3,240.00		
Strobel, Wm. A., motor grader operator	2,121.01		
Strobel, William D., apprentice raker	651.92		
Stroberg, Frank L., section foreman	3,023.54	4.45	
Strohecker, Lawrence D., laborer	29.50		
Strohmaier, Caroline, clerk	1,664.84		
Strohmeyer, Wm. M., dist. maint. superintendent	6,000.00	164.05	
Strong, George T., material inspector	379.03	2.35	

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Stroup, Jack E., laborer	$ 273.78	$	$
Struble, Gertie A., stenographer	2,640.00		
Stryker, Walter J., spot foreman	846.55		
Stuart, Albert L., mechanic	1,781.75		
Stuart, Cecil A., mechanic	3,144.60		
Stucker, Russell H., bridgeman	91.80		
Stultz, Fred L., section foreman	3,120.00		
Stump, Mitchell M., head chainman	1,920.00	1.00	
Stumpenhaus, Laurence C., sign crew foreman	3,360.00	774.20	
Sullivan, J. Frank, section foreman	3,006.77		
Sullivan, Lawrence J., computor	3,180.00	39.00	
Sutherland, Geo. A., assistant bridge foreman	3,257.67		
Sutherland, Jess W., section foreman helper	2,515.50		
Svarverude, Van, Jr., material inspector and chainman	1,059.35	.50	
Swacker, Wm. R., laborer	1,945.25		
Swanson, Leonard B., truck driver	1,848.71		
Swart, Hedda S., resident engineer	5,310.00		
Swartz, Frank M., bridgeman	2,100.90		
Swenson, Clarence G., chainman	1,256.67	47.50	
Swift, Dean, resident engineer	6,000.00	150.45	
Swigart, Howard A., truck driver	297.50		
Taber, Albert C., park caretaker	2,145.49		
Taber, Archie A., laborer	29.50		
Talbott, Clarence V., oiler	3,207.28	14.35	
Talbott, Ernest A., oiler driver	2,374.41		
Talbott, Herschel V., leverman	2,448.86		
Talbott, Wm. E., leverman	175.00		
Talmadge, Ernest E., assistant carpenter	2,312.90		
Tandy, Clarence W., computor	3,579.00		
Taylor, Al B., truck driver	1,033.31		
Taylor, Dale L., laborer	264.74		
Taylor, Donald B., stockman	2,760.00	2.75	
Taylor, Floyd D., truck driver	92.20		
Taylor, F. Wayne, sign shop foreman	3,360.00	292.40	
Taylor, Lloyd V., pump attendant	2,591.43	6.80	
Taylor, Paul A., truck driver	2,019.60	7.90	
Taylor, Robert M., sign crew helper	2,265.76	865.80	
Taylor, Sam C., section foreman helper	2,639.31	2.20	
Taylor, Thelma D., stenographer	1,188.88		
Taylor, Herm T., laborer	297.50		
Taylor, Wilson J., laborer	952.00		
Teague, Wm. Fred, laborer	1,835.30		
Teel, H. M., resident engineer	3,282.26	9.50	10.84
Telford, Thomas D., draftsman	4,080.00	12.85	
Templer, Verne J., paint machine operator	1,557.45		
Templeton, Aaron Beryl, laborer	1,342.90		
Terry, Merton, laborer	240.00		
Terry, Meryl V., typist	2,040.00		
Terry, Wm. O., shovel operator	3,091.65	7.50	
Tesdahl, Karl S., computor	2,106.56		
Tetrick, Glen M., watchman	2,580.00		
Tharp, A. Joseph, mechanic	3,251.60		
Tharp, Orville J., mechanic	2,965.20	8.15	
Theilen, Louis, grader operator	2,208.15		
Thielsen, Hans W., painter	2,524.09	460.55	
Thomas, Carl F., section foreman	3,120.00		
Thomas, Chas. B., laborer	62.15		
Thomas, Herbert O., truck driver	2,120.55	6.80	
Thomas, Homer B., laborer	31.63		
Thomas, John A., section foreman	3,120.00		
Thomas, Nickols J., laborer	506.92		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Thomas, Pete, truck driver	$1,390.69	$	$
Thomas, William I., laborer	67.50		
Thompson, Alexander, gate tender	2,400.00		
Thompson, Arnold, truck driver	849.75		
Thompson, Chas. E., computor	2,743.93	13 85	
Thompson, Floyd D., draftsman	4,080.00	551.35	
Thompson, Kenneth C., painter	116.50		
Thompson, Wesley Tabb, transitman	4,080.00		
Thornton, Charles J., district maintenance officeman	3,600.00	6.35	
Thorpe, Bernard F., chainman	2,011.07	57.10	
Thorpe, Vernon R., draftsman	4,148.43	.50	4.95
Tibbits, Lindsey, laborer	298.00		
Tichenor, Frank B., caretaker	100.00		
Tiller, Chas. A., laborer	139.00		
Tilley, Geo. C., section foreman	2,786.55		
Titus, Ben, technical assistant	1,050.00	18.70	
Tolvstad, Lester, rollerman	2,186.10		
Toney, James F., section foreman helper	2,649.40		
Tonkin, Gordon K., material inspector	1,583.87	28.40	
Toole, Joseph G., district maintenance superintendent	6,000.00	222.60	
Toole, Niccole A., resident engineer	5,310.00	63.00	
Tou Velle, F. L., commissioner		199.55	
Totton, John D., stockman	1,302.00		
Townsend, Clement A., truck driver	891.35		
Townsend, Donald M., truck driver	612 03		
Townsend, Watson, office engineer	5,943.55		
Towson, Travis J., chainman	399.48	28.90	
Toycen, Catherine M., typist	880.00		
Toycen, Russell W., paint machine operator	1,010.33	91.55	
Traglio, Webb L., flagman	223.93		
Trask, Donald A., truck driver	533.69		
Travess, George D., bridgeman	1,565 60		
Travess, John, laborer	2,005.00		
Travis, Robert G., laborer	36.50		
Tresham, Harry, laborer	1,733.00		
Trout, Wm. L., laborer	84.00		
Troutman, Leslie M., tamperman	223 61		
Trueman, Frank E., laborer	2,017.50		
Trueman, Geo. H., miner's helper	1,965.00		
Truelove, Ernest, mechanic's helper	759.05		
Tucker, Guy, clerk	2,276.13		
Tucker, James H., truck driver	1,211.90		
Tummonds, Ray N., paint machine operator	2,395.25		
Turk, Lloyd, chainman	506.68	122.65	
Turner, Alfred H., lineman	1,533.91		
Turner, John Frank, lineman	461.73		
Turner, Monroe, laborer	1,632.35		
Turner, Paul D., laborer	186.10		
Tuthill, Earl W., laborer	116.50		
Twidwell, Harry T., oiler driver	2,209.22	319.45	
Umphlette, Ernest E., resident engineer	6,000.00	9.55	
Umscheid, Guy L., laborer and truck driver	2,033.65		
Unger, Jack, truck driver	1,158.70		
Uppendahl, Walter F., mechanic	2,661.06	3.50	
Urlaub, Clara E., clerk	2,160.00		
Vagt, H. O., laborer	274.50		
Vagt, Robert R., laborer	1,089.40		
Valade, Earl C., head chainman	2,540.00	2.00	
Vancil, Melvin H., laborer	1,754.60		
Van Cleave, Jack R., sign crew helper	2,280.00	912.75	
Van Cleave, Kenneth L., section foreman	2,934.92		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Vandehey, Gerald J., man and team	$ 969.55	$	$
Vandehey, Wm. E., truck driver	2,226.81		
Van Gilder, Darvin A., laborer	1,533.35		
Van Hise, Frank, laborer	138.00		
Van Horn, George W., blacksmith	3,017.95		
Van Orden, Walter L., truck driver	2,330.37		
Van Scoy, Paul, assistant construction engineer	7,440.00	793.06	
Van Warmer, Jim I., laborer	100.00		
Vaughan, Ray F., laborer	86.00		
Vaughn, Roy C., section foreman	3,111.33	42.85	
Versteeg, Charles, bridgeman	416.70		
Versteeg, Earl E., bridgeman	368.70		
Vester, Albert C., computor	3,142.88	6.85	
Vicars, Elick R., laborer	1,928.00		
Vicars, Harold F., laborer	226.50		
Vincent, Anthony C., district maintenance officeman	3,722.25	4.50	
Vincent, James C., material checker	60.00		
Vinson, Alice G., clerk	2,878.06		
Voight, Fred C., section foreman helper	2,786.90		
Volz, John H., section foreman helper	2,631.87		
Waddell, Chas. L., section foreman helper	2,359.01		
Waddell, Oscar H., booster foreman	2,966.68		
Waddington, Andrew J., truck driver	2,247.25	24.00	
Wade, Bert A., laborer	175.00		
Wadsworth, Vernon, laborer	84.15		
Wagers, Ralph C., price clerk	2,760.00		
Wagers, Vicar, truck driver	767.20		
Waggoner, Lowell O., laborer	40.00		
Waggoner, Opal L., section foreman	3,120.00		
Wagner, Cecil L., mechanic	3,347.40	22.40	
Wagner, Clarence R., transitman	3,865.16	5.70	
Wagner, Harold H., pitman	1,134.39		
Waldroff, Robert F., laborer	20.00		
Walker, Charles J., motor grader operator	2,353.80		
Walker, Elmer R., laborer	40.00		
Walker, Ernest E., watchman	1,094.20		
Walker, Floyd L., laborer	103.75		
Walker, Jack G., laborer	63.81		
Walker, James D., dist. maint. superintendent	6,000.00	449.65	
Walker, J. Fred, raker	2,020.05	6.80	
Walker, Murray R., truck driver	2,074.39		
Walker, Noble A., laborer	2,027.50		
Walker, Paul W., laborer	40.00		
Walker, Solomon C., sign crew helper	2,522.41	99.90	
Wallace, Alvin J., chainman	83.33		
Wallace, Ernest W., laborer-truck driver	1,823.80		
Wallace, Lewis T., mechanic	3,312.40	5.95	
Wallace, Robert A., laborer	1,602.00		
Waller, John F., locating engineer	6,000.00	107.70	
Waln, A. Kehne, plant inspector	3,570.65	11.10	
Walsh, Angus R., computor	3,326.67	6.75	
Walsh, Raymond, Jr., stakeman	80.23		
Walters, Samuel F., resident engineer	5,310.00	18.40	
Walton, Eugene A., section foreman helper	2,667.60		
Walton, James J., assistant manager inventory survey	4,800.00	245.35	
Walton, Jesse L., laborer	1,931.50		
Ward, Ivan J., truck driver	2,276.75		
Ward, Vollie L., section foreman helper	2,643.15		
Warfield, Carl J., stake artist	310.65	1.00	
Warfield, Leslie H., draftsman	4,080.00	34.80	
Warner, Earl H., section foreman helper	2,675.40		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Warner, Vernon D., laborer	$ 47.50	$	$
Warner, Wm. N., laborer	97.90		
Warren, Chas. L., plant foreman	1,207.52		
Warren, Gordon L., chainman	2,042.90	13.20	
Warren, Joseph, laborer	173.00		
Warren, Lyle D., field assistant	9.00	2.35	
Warren, Marvin H., section foreman helper	2,443.26		
Warren, Vernon J., research assistant	440.00	85.65	2.48
Wassam, Murial, stenographer	1,361.29		
Waterhouse, Joseph E., computor	3,744.56	44.85	
Waters, Noel A., laborer	20.00		
Watkins, Ed., motor grader operator	2,409.20		
Watkins, Norman R., truck driver	2,179.90	14.15	
Watson, Laurence P., caretaker	2,164.00	2.15	
Watson, Leonard E., truck driver	1,639.75		
Way, Wesley W., laborer	113.00		
Weaver, Jack B., resident engineer	6,000.00	16.66	
Webb, Geo. L., truck driver	135.43		
Webber, Ray A., labor regulations engineer	5,400.00	309.47	
Weber, Joseph A., machine designer	5,640.00	164.95	
Wechman, Theodore E., blacksmith helper	2,629.26		
Wechter, Kenneth T., material inspector	1,403.98	315.45	
Wechter, W. Herbert, transitman	3,940.00	8.10	
Weddle, Chas. L., truck driver	130.70		
Weedmark, Cecil E., truck driver	2,386.20		
Wegner, Cecil J., laborer	174.00		
Welch, Anona E., secretary	3,017.74		
Welch, Maitland E., timekeeper	1,224.65		
Welch, Pauline G., secretary	3,315.00		
Wells, John H., section foreman helper	2,700.43		
Wells, Orbie A., laborer	310.35		
Welsh, Charles A., bridgeman	1,744.55		
Welsh, Fred J., section foreman	3,120.00		
Welsh, Samuel H., blacksmith helper	2,433.45		
Wengenroth, Otto G., truck driver	1,619.72		
Werner, Maurice, sign shop painter	2,211.30		
Werth, Elmer M., laborer	40.00		
Weseman, Earl W., laborer	2,022.35		
West, Fred W., paint machine operator	2,209.58	9.75	
Westenskow, Woodrow, laborer	203.50		
Weston, Virgil L., truck driver	438.25		
Wetherbee, Gordon L., laborer	1,480.40		
Whaley, Thomas Oness, mechanic	3,339.62	81.20	
Whaley, W. Frank, motor grader operator	2,192.42		
Whipps, Archie A., laborer	10.50		
White, Arthur G., pump attendant	1,753.36		
White, Dorr E., plant foreman	2,737.95		
White, Lawrence R., mower operator	162.30		
White, Oscar A., laboratory technician	4,230.00	15.50	
White, Paul C., power mower operator	2,261.50		
White, Rodney, truck driver	1,461.35		
Whiteis, Paul L., bridgeman	2,508.05		
Whities, N. C., flagman	262.53		
Whitmore, Perry P., resident engineer	6,000.00		
Whitted, Burton L., laborer	1,365.00	10.25	
Whittemore, Frank A., machinist	3,367.80		
Whittenberg, Jay E., section foreman helper	2,321.50		
Wicklander, Amanda A., clerk	3,000.00		
Widdows, Abraham B., street inspector	338.92		
Widdows, Walter O., assistant maintenance engineer	6,000.00	552.05	
Wiegman, Henry W., bridgeman	223.90		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Wigle, Charles L., power broom operator	$1,078.44	$	$
Willberger, Melvin L., truck driver	1,937.33		
Wilcox, Harvey N., laborer	49.50		
Wilcox, Kenneth E., paintman	1,046.70		
Wilcox, Shelby M., laborer	361.50		
Wilcox, S. Henry, Jr., truck driver	2,206.45		
Wilcox, Windle W., laborer	1,964.50		
Wilcoxen, John W., bridgeman	2,605.40		
Wilcut, Osgro B., motor grader operator	2,326 68	7.50	
Wilkerson, Leonard M., watchman	3,055.00		
Wilkins, Sam L., truck driver	2,302.70		
Wilkinson, Melvin H., material inspector	138.71		
Willard, Raymond E., raker	1,480.82		
Willett, A. C., laborer	1,771.30		
Willey, Lawrence E., assistant operator	3,360.00		
Willford, Clarence F., shoveler	744.59		
Williams, Arthur J., caretaker	360.00		
Williams, Burley E., laborer	435.75		
Williams, Dolly D., section foreman helper	2,557.40	4.10	
Williams, Elton L., laborer	151.50		
Williams, Horace J., district maintenance office clerk	3,600.00	27.00	
Williams, Kenneth B., field assistant	9.00	2.30	
Williams, Kenneth C., head chainman	2,520.00		
Williams, Mabel T., chief file clerk and librarian	2,578.15		
Williams, Marvin J., truck driver	2,458.20	5.50	
Williams, Ralph G., pitman	199.20		
Williams, Warren A., boilerman	1,224.24		
Williams, W. C., division engineer	9,600.00	776.70	
Williams, Treva T., truck driver	1,977.36		
Williamson, Gail A., truck driver	1,905.80		
Willis, Chas. V., section foreman	3,120.00		
Willis, Melvin C., laborer	186.20		
Wilson, Alvin L., chainman	1,002.26		
Wilson, Earl F., laborer	103.23		
Wilson, Floyd M., laborer	621.60		
Wilson, Henry G., rollerman	2,559.76		
Wilson, James Ed., section foreman	3,120.00		
Wilson, Kenneth L., laborer	1,861.94		
Wilson, Ray G., laborer	743.00		
Wilson, Ray L., bridgeman	2,319.30		
Wilson, Raymond O., section foreman	3,111.61	2.40	
Wimmer, Cleo S., laborer	202.55		
Wimmer, Perry E., apprentice raker	315.76		
Windust, F. Lewis, truck driver-laborer	131.45		
Winkle, Reed A., section foreman helper	2,459.75	6.45	
Winsor, Richard T., motor grader operator	2,285.95		
Wirtz, Willard H., Jr., chainman	1,484.52	13.80	
Wise, Clarence V., pull grader operator	2,085.00		
Wise, Guy C., section foreman	3,120.00		
Wise, Ralph J., laborer	1,959.00		
Withrow, Howard O., laborer	130.06		
Witter, Charles T., draftsman	4,440.00		
Witty, Ervan D., truck driver	1,862.40		
Wolfe, Victor D., draftsman	3,308.46	.50	4.75
Wolter, Howard, truck driver	83.23		
Wood, Berwick L., material inspector	10.00	1.15	2.08
Wood, George E., street inspector	3,341.94	42.45	4.95
Wood, George W., stockman	2,760.00		
Wood, Glenn H., truck driver	2,317.70		
Wood, Myron C., office assistant	3,600.00		
Wood, Victor, laborer	210.50		

LIST OF EMPLOYES—Continued

Name and Title	Amount Received		
	Salary	Expense Allowance	Private car Mileage
Wood, Wayne, truck driver	$ 358.02	$	$
Wood, William F., axeman	225.00		
Wooden, Clifford T., section foreman	3,120.00		
Woodley, Earl H., assistant bridge carpenter	2,460.25		
Woods, Jesse Y., laborer	176.50		
Woodward, Kenneth L., laborer	244.00		
Wooley, Charles A., laborer	2,034.00		
Woodward, Mary, typist	890.32		
Wooldridge, Elmer H., timber inspector's helper	2,520.00		
Workman, Leonard W., laborer	2,284.57		
Wright, Arthur L., laborer	1,387.50		
Wright, Curtis L., shovel operator	2,555.35	3.70	
Wright, Dean H., truck driver	748.43		
Wright, Geo. E., truck driver	878.67		
Wright, Joseph O., flushcoater	445.40		
Wright, Richard O., tractor operator	103.60		
Wright, Roger W., section foreman helper	2,667.60		
Wright, Walter T., stake artist	147.95		
Wuonola, J. Nester, section foreman helper	2,661.75		
Wyatt, Robert W., stakeman	804.19		
Wyllie, Charles P., bridgeman	2,392.40		
Wyllie, Raymond G., lineman	440.65		
Yale, William McKinley, truck driver	2,267.15		
Yeager, G. M., assistant auditor	4,800.00		
Yeater, Paul J., draftsman	4,080.00	4.40	
Yeck, Lloyd O., pump attendant	2,504.81		
Yerex, Carleton K., draftsman	4,065.93		
Yoder, Calvin, shoveler	661.13		
Yoder, Harry L., bridge foreman	3,960.00		
Yohn, Henry J., truck driver	1,587.40		
York, Albert L., head chainman	2,494.81	3.10	
Young, Calvin E., laborer	1,813.25		
Young, Charles L., street inspector	622.26	3.00	
Young, Frank T., resident engineer	6,000.00	10.75	
Young, Louis D., chainman	424.14		
Young, L. Hilbert, transitman	4,080.00	22.30	
Young, Meryle F., laborer	276.90		
Young, Wayne E., truck driver	1,797.50		
Zaddach, Gilbert W., shovel operator	3,514.25	6.60	
Zeigler Wm. S., laborer	40.00		
Zimmer, Dick, assistant traveling park caretaker	276.67		
Zook, Sam, truck driver	925.00		
Zutz, Milfred F., computor	1,352.90	.40	4.75

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